

ADDENDUM NO. 1

March 17, 2023

Whiteland Community High School Phase 1A
300 E. Main Street
Whiteland, IN 46184

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications, and the Drawings dated February 27, 2023, by Lancer Associates Architecture. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 1-1 through ADD 1- 1 and attached Lancer Associates Architecture Addendum No. 1, dated March 16, 2016, consisting of 1 Page, Specification Sections 10 14 53 – Traffic Signage, 32 17 23 – Pavement Markings, 32 92 00 – Turf and Grasses, and 33 31 00 – Sanitary Sewers.

A. SPECIFICATION SECTION 01 12 00 - MULTIPLE CONTRACT SUMMARY

1. Paragraph 3.03 Bid Categories

A. Bid Category No. 1 - General Trades

Add the following Specification Sections:

10 14 53 – Traffic Signage
32 17 23 – Pavement Markings
32 92 00 – Turf and Grasses
33 31 00 – Sanitary Sewers

ADDENDUM NO. ONE

PROJECT: Whiteland Community High School Phase 1a

PROJECT NUMBER: 22130

DATE OF ADDENDUM: March 16, 2023



THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND IS ISSUED IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS. ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY SIGNING THE ADDENDUM ACKNOWLEDGMENT SECTION OF THE BID FORM.

SPECIFICATIONS

1. Add the following spec sections to specifications and index
 - 10 14 53 – Traffic Signage
 - 32 17 23 – Pavement Markings
 - 32 92 00 – Turf and Grasses
 - 33 31 00 – Sanitary Sewers

Attachments: Spec Sections :10 14 53, 32 17 23, 32 92 00, 33 31 00

End of Addendum 1

SECTION 10 1453 – TRAFFIC SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Manual on Uniform Traffic Control Devices (MUTCD) latest edition.

1.2 SUMMARY

- A. Section Includes:
 - 1. Installation and relocation of traffic signage.

1.3 PROJECT CONDITIONS

- A. All traffic signage shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD).
- B. All signs shall be handled and stored in accordance with the manufacturer's recommendations. All signs damaged prior to acceptance shall be replaced at the Contractor's expense.

PART 2 - PRODUCTS

2.1 SHEET SIGNS

- A. Backing material for permanent sheet signs shall be sheet aluminum in accordance with ASTM B209, alloy 5052H38, or alloy 6061-T6.
- B. Reflective sheeting used for signs shall be in accordance with ASTM D4956.
- C. The minimum thickness of sheet signs shall be as shown below for the appropriate sign width:

Sign Width (inches)	Sheet Thickness (inches)
Up to 30	0.080
31 to 60	0.100
61 and Over	0.125

2.2 SIGN POSTS

- A. Steel used in posts shall conform to the physical properties of ASTM A499, grade 60 and to the chemical compositions of ASTM A1 for 91 lb/yd or larger steel rails.
- B. Posts shall be a uniform flanged channel or U section. Steel posts shall be galvanized in accordance with ASTM A123.

PART 3 - EXECUTION

3.1 SIGN POST INSTALLATION

- A. Posts shall be installed vertically. All damaged posts shall be removed and replaced with an acceptable post.
- B. Square sign post foundations shall include reinforced anchor base.

3.2 SHEET SIGN INSTALLATION

- A. Sheet signs shall be fastened to sign post in accordance with steel washers and lock-nuts in accordance with INDOT Standard Details and Specifications. Twisted or damaged signs shall be replaced at the Contractor's expense.

END OF SECTION 10 1453

SECTION 32 1723 – PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Pavement markings for parking spaces, handicap parking symbols, stop bars, travel lanes, drive aisles, and islands.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Contractor shall submit paint product data.

1.4 PROJECT CONDITIONS

- A. Underground detention system material or manufacturer substitutions must be approved in writing by the Engineer. The following requirements must be met in order to any potential material or manufacturer substitutions to be considered:

PART 2 - PRODUCTS

2.1 PAVEMENT MARKING PAINT

- A. Paint for white, blue, and/or yellow pavement markings shall be waterborne traffic paints consisting of an emulsion of pigmented binder.
- B. Paint shall not darken under heating conditions of application or show appreciable discoloration due to sunlight exposure.
- C. Paint shall be quick drying to a no-tracking condition in less than 60 seconds.

2.2 THERMOPLASTIC PAVEMENT MARKINGS

- A. When specified on the construction plans, thermoplastic for pavement markings shall be in solid form in accordance with AASHTO M 249 or supplied in a preformed state and shall not contain lead chromate pigments.

PAVEMENT MARKINGS

- B. The material shall be capable of fusing to itself and previously applied thermoplastic pavement markings when heated.
- C. Material shall contain a minimum of 30% beads by weight. Beads shall be homogeneously blended throughout the thermoplastic material.

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. Pavement surface shall be cleaned of all dirt, oil, grease, excess sealing material, excess pavement marking material, and all other foreign material prior to applying new pavement markings.
- B. New paint pavement markings may be placed over sound existing markings of the same color. New thermoplastic or preformed pavement markings may be applied over sound existing markings of a compatible type if allowed by manufacturer's recommendations.
- C. Existing pavement markings of differing color shall be removed before placement of any new paint pavement markings.
 - 1. Removal of pavement markings shall be to the fullest extent possible without materially damaging the pavement surface. Pavement marking removal methods shall be sandblasting, steel shot blasting, waterblasting, grinding, or other approved mechanical methods. Grooving shall not be allowed.
- D. Pavement surface shall be dry prior to applying pavement markings.

3.2 PAVEMENT MARKING INSTALLATION

- A. Markings shall be installed in accordance with the manufacturer's recommendations. All pavement markings shall be protected from traffic until dry to eliminate tracking.
- B. Thermoplastic pavement markings shall be applied in molten form by conventional extrusion, by ribbon type extrusion, or spray when the pavement and ambient air temperatures are 50° F and rising. Heat bonded preformed thermoplastic may be used for transverse or message markings.
 - 1. Equipment used for application of thermoplastic markings shall consist of a kettle for melting material and an applicator for applying the markings. All equipment required for melting and applying the material shall maintain a uniform material temperature within the manufacturer's specified limits without scorching, discoloring, or overheating any portion of the material.
 - 2. Equipment used for applying heat bonded preformed plastic shall be in accordance with the manufacturer's recommendations. An open flame shall not come into direct contact with the pavement.

- C. Traffic paint pavement markings shall be applied only when the ambient air and pavement temperature is 40° F or higher and will remain 40° F or higher for 2 hours after application.
 - 1. Traffic paint pavement markings shall be applied with a spray type machine capable of applying the paint under pressure through a nozzle directly to the pavement.

END OF SECTION 32 1723

SECTION 32 92 00 – TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Seeding of areas disturbed by construction that are not otherwise indicated for improvements.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.
- C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- D. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - 1. Certification of each seed mixture for turf grass, native grasses and plugs, identifying source, including name and telephone number of supplier.
- C. Product Certificates: For soil amendments and fertilizers, signed by product manufacturer.
- D. Qualification Data: For landscape installer.
- E. Material Test Reports: For existing surface soil and imported topsoil.

- F. Planting Schedule: Indicating anticipated planting dates for each type of planting.
- G. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of lawns and meadows during a calendar year. Submit before expiration of required maintenance periods.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn and meadow establishment.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.
- B. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Department of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.
- C. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; deleterious material; pH; and mineral and plant-nutrient content of topsoil.
 - 1. Report suitability of topsoil for lawn growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce a satisfactory topsoil.
- D. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

1.7 SCHEDULING

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 - 1. Spring Planting: April 1 to May 30.
 - 2. Fall Planting: August 15 to October 15.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

1.8 LAWN MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
 - 1. Seeded Lawns: Sixty (60) days from date of Substantial Completion.
 - a. If the full maintenance period has not elapsed prior to October 30th, or if lawn is not fully established, continue the balance of the maintenance period the following spring beginning March 1st.
- B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn.
 - 1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.
- C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist to a depth of 4 inches (100 mm).
 - 1. Schedule watering to prevent wilting, ponding, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 - 2. Water lawn at a minimum rate of 1 inch (25 mm) per week.
- D. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 40 percent of grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
 - 1. Mow grass 1-1/2 to 2 inches (38 to 50 mm) high.
- E. Lawn Post-fertilization: Apply fertilizer after initial mowing and when grass is dry.
 - 1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) to lawn area.

PART 2 - PRODUCTS

2.1 SEED

- A. Low-Mow Seed Mix: Provide No-Mow seed mix as produced by Prairie Nursery of Westfield, WI, 1-800-476-9453, or approved equal, as indicated in Plans. Provide seed mixture composed of grass species, proportions and minimum percentages of purity, germination, and maximum percentage of weed seed, as follows.

Spread at a rate of 220 lbs/acre, or as required to achieve successful germination and coverage rates listed within this Specification.

- | | | | |
|----|--------|------------------------|-----------------------|
| a. | 23.52% | SR5100 Chewings Fescue | |
| b. | 23.52% | Sheep Fescue | |
| c. | 11.76% | Dawson Red Fescue | |
| d. | 11.76% | SR3100 Hard Fescue | |
| e. | 11.76% | Scaldis Hard Fescue | |
| f. | 11.76% | Creeping Red Fescue | |
| g. | 3.92% | Annual Ryegrass | |
| h. | 2.0% | Inert Matter* | *No noxious weed seed |

* Follow all manufacturer's recommendations for application procedures and seed bed preparation.

2.2 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 3 percent organic material content; free of stones 1 inch (25 mm) or larger in any dimension and other extraneous materials harmful to plant growth.
1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
- a. Although not anticipated within this Project, should quantities of existing topsoil be insufficient, supplement with imported or manufactured topsoil from off-site sources. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches (100 mm) deep; do not obtain from agricultural land, bogs or marshes.
- b. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

2.3 INORGANIC SOIL AMENDMENTS

- A. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:
1. Class: Class T, with a minimum 99 percent passing through No. 8 (2.36-mm) sieve and a minimum 75 percent passing through No. 60 (0.25-mm) sieve.
2. Class: Class O, with a minimum 95 percent passing through No. 8 (2.36-mm) sieve and a minimum 55 percent passing through No. 60 (0.25-mm) sieve.
3. Provide lime in form of dolomitic limestone.
- B. Sulfur: Granular, biodegradable, containing a minimum of 90 percent sulfur, with a minimum 99 percent passing through No. 6 (3.35-mm) sieve and a maximum 10 percent passing through No. 40 (0.425-mm) sieve.
- C. Iron Sulfate: Granulated ferrous sulfate containing a minimum of 20 percent iron and 10 percent sulfur.
- D. Aluminum Sulfate: Commercial grade, unadulterated.

- E. Perlite: Horticultural perlite, soil amendment grade.
- F. Agricultural Gypsum: Finely ground, containing a minimum of 90 percent calcium sulfate.
- G. Sand: Clean, washed, natural or manufactured, free of toxic materials.

2.4 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch (25-mm) sieve; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: 50 to 60 percent of dry weight.
- B. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.
- C. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.
- D. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.5 PLANTING ACCESSORIES

- A. Selective Herbicides: EPA registered and approved, of type recommended by manufacturer for application.

2.6 FERTILIZER

- A. Bonemeal: Commercial, raw or steamed, finely ground; a minimum of 4 percent nitrogen and 20 percent phosphoric acid.
- B. Superphosphate: Commercial, phosphate mixture, soluble; a minimum of 20 percent available phosphoric acid.
- C. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.
- D. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.7 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch (25-mm) sieve; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: 50 to 60 percent of dry weight.
- C. Fiber Mulch: Biodegradable, dyed-wood, cellulose-fiber mulch; nontoxic; free of plant-growth or germination inhibitors; with maximum moisture content of 15 percent and a pH range of 4.5 to 6.5.
- D. Nonasphaltic Tackifier: Colloidal tackifier recommended by fiber-mulch manufacturer for slurry application; nontoxic and free of plant-growth or germination inhibitors.
- E. Asphalt Emulsion: ASTM D 977, Grade SS-1; nontoxic and free of plant-growth or germination inhibitors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from hydroseeding overspray.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 LAWN PREPARATION

- A. Limit lawn subgrade preparation to areas to be planted.
- B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches (100 mm). Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

1. Apply fertilizer directly to subgrade before loosening.
 2. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.
 - a. Delay mixing fertilizer with planting soil if planting will not proceed within two days.
 - b. Mix lime with dry soil before mixing fertilizer.
 3. Spread planting soil mix to a minimum depth of 4 inches (100 mm), but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.
 - a. Spread approximately one-half the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 2 inches (50 mm) of subgrade. Spread remainder of planting soil mix.
 - b. Reduce elevation of planting soil to allow for soil thickness of sod.
- C. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:
1. Remove existing vegetation. Do not mix into surface soil.
 2. Loosen surface soil to a depth of at least of 6 inches (150 mm). Apply soil amendments and fertilizers according to planting soil mix proportions and mix thoroughly into top 4 inches (100 mm) of soil. Till soil to a homogeneous mixture of fine texture.
 - a. Apply fertilizer directly to surface soil before loosening.
 3. Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, trash, and other extraneous matter.
 4. Legally dispose of waste material, vegetation, and turf, off Owner's property.
- D. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch (13 mm) of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.
- E. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- F. Restore areas if eroded or otherwise disturbed after finish grading and before planting.
- 3.4 SEEDING
- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h). Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
1. Do not use wet seed or seed that is moldy or otherwise damaged.

- B. Sow seed at the rate of 3 to 4 lb/1000 sq. ft. (1.4 to 1.8 kg/92.9 sq. m), or as required to achieve the performance requirements of successful germination and coverage.
- C. Rake seed lightly into top 1/8 inch (3 mm) of topsoil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 1:6 with erosion-control fiber mesh and 1:4 with erosion-control blankets installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre (42 kg/92.9 sq. m) to form a continuous blanket 1-1/2 inches (38 mm) in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
 - 1. Bond straw mulch by spraying with asphalt emulsion at the rate of 10 to 13 gal./1000 sq. ft. (38 to 49 L/92.9 sq. m). Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.
- F. Protect seeded areas from hot, dry weather or drying winds by applying compost mulch within 24 hours after completing seeding operations. Soak and scatter uniformly to a depth of 3/16 inch (4.8 mm) and roll to a smooth surface.

3.5 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
 - 1. Mix slurry with non-asphaltic or asphalt-emulsion tackifier.
 - 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply mulch at a minimum rate of 1,500-lb/acre (15.3-kg/92.9 sq. m) dry weight but not less than the rate required to obtain specified seed-sowing rate.

3.6 SATISFACTORY LAWNS

- A. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 3 by 3 inches.
- B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.
- C. Redundant Coordination: Should the Contractor fail to achieve successful turf establishment as a result of inattention, poor timing or general lack of effort as determined by the Landscape Architect, the Consultant's time and travel expenses will be reimbursed by the Contractor for multiple site/punch visits and additional coordination or administration required to overcome shortcomings.

3.7 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.
- C. Remove erosion-control measures after grass establishment period.

END OF SECTION

SECTION 33 3100 – SANITARY SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Installation of sanitary sewer mains, laterals, cleanouts, taps, manholes and related items.

1.3 ACTION SUBMITTALS

- A. Product Certificates: Contractor shall submit the following certifications and documentation:
 - 1. Producer name, location, and source/approval number of the precast reinforced sanitary manhole structures from the INDOT Certified Precast Concrete Producers list.
 - 2. Manufacturer name, location and source/approval number of the PVC pipe and all plastic fittings from the INDOT plastic pipe and pipe liner sources list.
- B. Product Data: For each type of product.
 - 1. Contractor shall submit shop drawings, manufacturer information, details, material descriptions, and dimensions of individual components for the following:
 - a. Precast concrete sanitary manholes
 - b. Sanitary manhole castings

1.4 PROJECT CONDITIONS

- A. The Contractor shall field verify location, size, and elevation of the existing sanitary sewer system where proposed sanitary sewer systems are to be connected. Contractor shall report discrepancies to the Owner and Engineer immediately.
- B. The Contractor shall field verify the location, size, and elevation of other existing utility conveyances including domestic water, sanitary sewer, natural gas, electric, and telecommunication cables/ducts prior to construction and immediately report conflicts with the proposed storm sewer systems to the Owner and Engineer.

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- C. Sanitary sewer pipe and structures shall comply with current specifications of the Town of Whiteland Department of Public Works and Town of Whiteland Design Standards and Specifications Manual and all other responsible agencies in respect to design and quality of construction.
- D. Sanitary sewer pipe material substitutions must be approved in writing by the Engineer.

PART 2 - PRODUCTS

2.1 PIPE COUPLINGS

- A. If specified on the approved construction plans, pipe-to-pipe connections for different materials shall be made utilizing an approved coupling manufactured by Fernco, Inc.

2.2 TRACER WIRE

- A. Provide green colored, 10-gauge solid copper insulated locating (tracer) wire taped to the top of all sanitary sewer mains and laterals.

2.3 POLYVINYL CHLORIDE (PVC) PIPE

- A. Provide solid wall PVC pipe for gravity sanitary sewer as follows:
 - 1. For pipe sizes 15-inch and less which are less than 15 feet deep, provide SDR-35 PVC conforming to ASTM D3034.
 - 2. For pipe sizes 15-inch and less which are 15 to 25 feet deep, provide SDR-26 PVC conforming to ASTM D3034.
 - 3. For pipe sizes 15-inch and less which are within 10 feet of a water main or 50 feet of a water well, regardless of depth, provide SDR-21 PVC conforming to ASTM D3034.
- B. If PVC Schedules 40, 80, and 120 are specified on the construction plans, said PVC pipe shall conform to ASTM D1785-96b.
- C. PVC pipe joints shall be bell and spigot type with elastomeric seals per ASTM D3212 with gaskets conforming to ASTM F477.

2.4 PRECAST SANITARY MANHOLES

- A. All sanitary manholes shall be precast concrete with integral concrete bases. Cast-in-place or separate precast concrete bases shall only be utilized as identified on the approved construction plans for installation of a doghouse manhole.
- B. Precast concrete and steel for manholes and inlets shall be in accordance with ASTM C-478.

SANITARY SEWERS

- C. Castings shall be as shown on the detail sheet(s) for manufacturer, type, and model numbers.
- D. Manhole steps shall be PS-1-PF by MA Industries, Peachtree Town, GA or approved equal.
- E. A double row of Kent Seal #2 by Hamilton Kent Manufacturing Co., Kent, OH shall be used between adjacent manhole sections. Butyl wrap shall be provided on all exterior joints.
- F. Openings for sanitary sewer pipe in new manholes shall be fitted with Kor-N-Seal boot assemblies with stainless steel tightening band by Dukor Co., Milford, NH or A-Lok X-Cel by A-Lok, Tullytown, PA (up to 18 feet deep).
 - 1. Sanitary sewer pipe connections to existing manholes shall be made utilizing a CMA Waterstop by Fernco, Inc., Davidson, MI or approved equal.

2.5 MORTAR

- A. Mortar for setting casting frames shall be composed of 1 part cement to 2 parts No. 23 fine aggregate by volume.

PART 3 - EXECUTION

3.1 GENERAL

- A. Permits and Codes: The intent of this section of the specifications is that the Contractor's bid on the work covered herein shall be based upon the drawings and specifications but that the work shall comply with all applicable codes and regulations as amended by any waivers. The contractor shall furnish all bonds necessary to get permits for cuts and connections to existing sewers.
- B. Contractor shall be responsible for confirming, coordinating, and scheduling all necessary inspections by the Town of Whiteland related to the sanitary sewer system installation.
- C. Local Standards: The term "local standards" as used herein means the standards of design and construction of the Town of Whiteland Department of Public Works and Town of Whiteland Design Standards and Specifications Manual.
- D. Existing Improvements: The Contractor shall maintain in operating condition all active utilities, sewers, and other drains encountered in the sewer installation. The Contractor shall repair to the satisfaction of the Owner any damage to existing active improvements.
- E. Utilities: It shall be the responsibility of the Contractor to verify all existing utilities and conditions pertaining to his work. It shall also be the Contractor's responsibility to contact the owners of the various utilities before work is started. The Contractor shall notify in

SANITARY SEWERS

writing the Owner and Engineer of any changes, errors, or omissions found on these plans or in the field before work is started or resumed.

- F. Workmanship: This work shall conform to all local, state, and national codes and to be approved by all local and state agencies having jurisdiction.

3.2 TRENCH EXCAVATION

- A. Excavate storm sewer trenches to the widths and depths as indicated on the construction plans and details and in accordance Section 31 20 00 Earthwork.

3.3 STRUCTURE INSTALLATION

- A. Contractor shall install precast concrete sanitary structures in accordance with Section 720 of the INDOT 2020 Standard Specifications.
- B. Excavation shall be to the established bottom of the structure foundations and shall result in a firm, smooth surface. If soft or yielding spots are encountered at this elevation, the Contractor shall remove the soft soil and backfill it with suitable granular backfill or crushed limestone aggregate materials tamped into place. If rock is encountered at the bottom elevation, the excavation shall be carried down 6 inches further and backfilled with an approved material tamped to the required elevation.
- C. Inlet and outlet pipes shall extend through structure walls a sufficient distance to allow for connections to the outside and concrete/mortar carefully placed around them to prevent leakage around the pipe.
- D. Frames for castings and bearing plates for manholes shall be set in full mortar beds and secured. Mortar shall be composed of 1 part cement to 2 parts No. 23 fine aggregate by volume. Castings shall be set to the finished pavement elevations so that subsequent adjustments are not necessary.
- E. Where castings are adjacent to or are surrounded by cement concrete construction, each casting shall be entirely separated from the concrete by a preformed joint filler not less than 3/8" thick. Grates shall be places with the maximum dimension of the rectangular opening parallel to the direction of flow.
- F. If a manhole is constructed within the pavement area, the total height of the casting specified plus the height of the adjusting rings shall be based on the adjacent pavement section depth.
- G. If the completed structure is partially or completely under or at its nearest point is within 5 feet of pavement, sidewalks, curbs, gutters or buildings, the excavated space not occupied by the structure shall be backfilled with granular backfill material.
- H. Manhole Inverts: construct manhole flow channels of concrete sewer pipe or brick, smoothly finished and of semicircular section conforming to the inside diameter of the connecting sewers. Make changes in size or grade gradually and changes indirection by true curves. Provide such channels for all connecting sewers at each manhole.

3.4 PIPE INSTALLATIONS

- A. Contractor shall install sanitary sewer pipe in accordance with Section 715 of the INDOT 2020 Standard Specifications.
- B. Excavate trenches in accordance with the details included in the construction plans and Section 31 20 00 Earthwork. Where pipe is to be placed in fill sections, a portion of the fill shall be constructed and compacted in accordance with the specifications prior to pipe installation.
- C. Sheet and brace trenches as necessary to protect workmen and adjacent structures. All trenching to comply with current Occupational Safety and Health Administration (OSHA) standards. Keep trenches free from water while construction is in progress. Under no circumstances shall pipe or appurtenances be laid in standing water. Conduct the discharge from trench de-watering to appropriately designed and sized dewatering bags or basins prior to discharging into storm sewer drains or natural drainage channels.
- D. Install #8 compacted aggregate for bedding of flexible pipe in 6-inch lifts. Compaction shall be accomplished by hand or mechanical tamping or walking the granular material in.
- E. Lay pipe to the lines and grades shown on the construction plans. All pipe shall be laid commencing from the lowest point, proceeding upstream, with the spigot ends pointing towards the direction of the flow. PVC pipe shall not be blocked for support. The practice of blocking pipe up to grade with bedding material then backfilling underneath the pipe is prohibited. The entire length of the bed section shall be at the proper grade before installing pipe.
- F. Where PVC pipe is to be installed below the maximum ground water table, Contractor shall provide adequate weights to prevent floatation of the pipe.
- G. Install PVC pipe on a firm, uniform foundation of bedding material under the entire lower quadrant of the barrel. No weight shall be supported by the pipe bell.
- H. Pipe shall be carefully inserted into the bell in such that there will be no unevenness of any kind along the bottom half of the pipes and that there is a uniform joint space all around.
- I. Contractor shall take special precautions when homing PVC pipe as to not over-seat past the home marks. Field cut pipes shall have the homing marks reestablished to ensure proper seating depths. Field cut pipes shall have the cut ends re-tapered, by grinding or filing, as close as possible, to the original taper provided by the manufacturer. When homing pipe with a spud-bar or other mechanical equipment, other than by hand, a piece of wood shall be placed between the pipe and tool to prevent damage to the bell end section.
- J. All pipes which settle, or which are not in alignment, shall be taken up and re-laid at the Contractor's expense.
- K. Backfilling: Pipe bedding and backfill shall be placed as shown in the plans. Contractor shall install initial backfill consisting of Class I material such as #8 aggregate a minimum

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of 12" above the top of PVC pipe. Contractor shall hand tamp or walk-in bedding and initial backfill. Contractor shall install Class II or clean sand granular backfill in 6-inch maximum lifts and mechanical compact to 95% modified proctor density when trenches are within 5 feet of sidewalks, pavement, curbs, or buildings. Compaction operations shall be completed taking care not to disturb the pipe.

3.5 DEWATERING

- A. If necessary due to site conditions or excessive rainfall events, the Contractor shall dewater the site and/or excavations utilizing a system of pumps and re-useable dewatering bags. The Contractor shall not allow dewatering operations to discharge directly into storm sewers, storm inlets or manholes, ditches, or swales without an appropriately sized and selected dewatering bag. Under no circumstances shall dewatering operations associated with groundwater or precipitation be discharged into a sanitary sewer.

3.6 FIELD QUALITY CONTROL

- A. Contractor shall perform all testing in the presence of the Town of Whiteland's and the Owner's designated representatives.
- B. Cleaning Flexible PVC Pipe: Contractor shall clean newly installed sanitary sewer pipe using a high-pressure water jet prior to conducting any testing.
- C. Air Test for Flexible PVC Pipes: Contractor shall be responsible for performing air testing in between sanitary manholes in accordance with ASTM F1417-92.
- D. Sanitary Manhole Vacuum Testing: Contractor shall be responsible for performing vacuum testing in accordance with ASTM C1244-93 "Standard Test Method for Concrete Sewer Manholes" by the negative air pressure (vacuum test). Vacuum testing shall be performed from the top of the casting down.
- E. Deflection Testing for Flexible PVC Pipes: Contractor shall be responsible for performing deflection testing in accordance with the following requirements:
 - 1. Perform testing on all PVC sanitary sewer pipe 8-inch and larger after the final backfill has been in place for at least 30 days.
 - 2. Perform deflection testing using a mandrel pulled by hand. The mandrel (go/no-go) device shall be cylindrical in shape and constructed with nine or ten evenly spaced arms or prongs.
 - 3. No pipe shall exceed a vertical deflection of 5%. Contractor shall uncover, replace, and retest any pipe not passing the deflection test until a satisfactory result is achieved.
- F. Television Inspection: Contractor shall be responsible for televising the sanitary sewer in accordance with the following requirements:

1. Televiser all mainline sanitary sewers (manhole to manhole).
2. Perform television inspection in the presence of the Owner's designated representative.
3. Clean all new sanitary sewers prior to television inspection so the image is clear and interior condition of the pipe is easily evaluated.
4. Correct all unacceptable conditions found during television inspection and re-televise until no unacceptable conditions are found.
5. Unacceptable conditions are those adversely impacting the ability of the system to function as designed or to be properly maintained including but not limited to the following:
 - a. Protruding taps
 - b. Cracked or faulty pipe
 - c. Misaligned or deformed pipe
 - d. Debris in line
 - e. Infiltration/exfiltration
 - f. Excessive gaps in joints
 - g. Bellies or sags with a depth greater than or equal to 10% of the pipe diameter (maximum of 3 inches) or a length greater than 25 feet.
6. Submit copy of the televising recording (DVD format) to the Owner within 14 calendar days of the inspection.

END OF SECTION 33 3100