VILLAGE OF BEULAH
Benzie County, Michigan
Elevated Storage Tank

PROJ #2017027001.03	ADDENDUM #1	DATE: 12/08/2017

NOTICE: This Addendum No. 1, issued in accordance with the Contract Documents, is incorporated into the Contract Documents and supersedes and updates all conflicting information and is hereby amended in certain particulars as follows:

Date: December 8, 2017

CHANGES TO THE CONTRACT DOCUMENTS:

Insert the following Technical Specifications:

02270 – Erosion Control
02513 – Concrete Surfaces
03101 – Concrete Form Work (ACI)

CHANGES TO THE PLANS:

None

ADDENDUM ACKNOWLEDGMENT:

This Addendum No. 1 shall be attached to and shall become a part of the Contract Documents. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may result in the rejection of the Bid.

END SECTION

DISTRIBUTION: (via email)
All Plan Holders
Andrew H Granskog, PE, State Engineer
Blake Smith, Area Specialist
File

SECTION 02270

EROSION CONTROL

PART 1 GENERAL

1.01 SUMMARY

A. Section includes, work necessary for effective temporary and permanent soil erosion and sedimentation control.

B. Related Sections:
1. Section 01025 MEASUREMENT AND PAYMENT
2. Section 02200 EARTHWORK
3. Section 02900 LANDSCAPING

1.02 UNIT PRICES

Temporary and permanent erosion control measures will be considered incidental to the construction, unless specifically indicated on the BID SCHEDULE and referred to in Section 01025 MEASUREMENT AND PAYMENT.

1.03 QUALITY ASSURANCES

Perform all Work in accordance with the Michigan Soil Erosion and Sedimentation Control Act, Part 91 of Act 451, P.A. 1994, and with the requirements of the local agencies having jurisdiction over the Work.

PART 2 PRODUCTS

2.01 MATERIALS

A. Seed, fertilizer, and mulch: Provide as specified in Section 02900 LANDSCAPING.

B. Provide temporary and permanent structures and materials in accordance with the Michigan Department of management and Budget Keying System. See Figure 1 at the end of this section.

C. Mulch blanket:
1. Materials: 100% straw sewn into a lightweight, photo degradable netting.
2. Model: S75.
3. Straw content: 0.5 pounds per square yard.
4. Manufacturer: North American Green.

D. Geotextile filter fabric:
1. Materials: Mechanically bonded, non-woven geotextile.
2. Manufacturer: Amoco
3. Model: CEF 4553
4. Tensile strength: 203 lbs. (ASTM D-4632).
5. Tensile elongation: 50% min. (ASTM D-4632).
6. Tear strength: 80 lbs. (ASTM D-4533).

7. Puncture strength: 130 lbs. (ASTM D-4833).
8. Apparent opening size: 100 sieve (ASTM D-4751).

E. Rip rap stone: (4-6")
1. Material: native fieldstone from local gravel pits, exhibiting sound structure and strength for the intended use.
2. Size: 1" to 6" stone.
3. Gradation:
a. D_{100} = 6 inch
b. D_{50} = 4 inch
c. D_{10} = 2 inch

F. Rip rap stone: (10-12")
1. Material: native fieldstone from local gravel pits, exhibiting sound structure and strength for the intended use.
2. Size: 6" to 12" stone.
3. Gradation:
a. D_{100} = 12 inch
b. D_{50} = 10 inch
c. D_{10} = 8 inch

G. Silt fence:
1. Conforming to the current Michigan Department of Transportation Standard Specifications.

PART 3 EXECUTION

3.01 GENERAL

Conduct site evaluation with the Engineer and the soil erosion control officer prior to starting work.

3.02 TEMPORARY EROSION CONTROL

A. Minimize the area of earth disturbed at any one time.

B. Provide berms or ditches to divert storm runoff from the construction area when steep slopes or highly erodible soils are present.

C. Contain all sedimentation on site by using straw bales, filter fence, or sedimentation basins.

3.03 PERMANENT EROSION CONTROL

A. When final grades have been established, provide topsoil, seed, fertilizer, and mulch.

B. Water all seeded areas as necessary to establish proper vegetative cover.

C. Should erosion occur within the guarantee period, regrade and reseed the disturbed area at no additional cost to the Owner.

3.04 MULCH BLANKET

A. Provide mulch blanket on all slopes 3:1 or steeper, that are disturbed during construction or as indicated on the plans. Install in accordance with manufacturer recommendations.

B. Prepare soil prior to placing mulch blanket with topsoil, seed and fertilizer.

C. Place mulch blanket from top of slope down so overlap seams run parallel to slope.

D. Overlap seams a minimum of 2" on parallel seams, and six inches, shingle style, on perpendicular splices.

END OF SECTION

SECTION 02513

CONCRETE SURFACES

PART 1 GENERAL

1.01 SUMMARY

A. Section includes, all materials, labor, tools, and equipment necessary for the construction of concrete surfaces, including sidewalks and curb and gutter.

B. Related Sections:
   1. Section 01025 MEASUREMENT AND PAYMENT
   2. Section 02200 EARTHWORK

1.02 UNIT PRICES

Refer to Section 01025 MEASUREMENT AND PAYMENT

PART 2 PRODUCTS

2.01 MATERIALS

A. Concrete reinforcement:
   1. Conform to MDOT 905.

B. Concrete:
   1. Conform to MDOT Section 601 and 602.
   2. MDOT Grade P1, 3500 psi concrete mix.

C. Joint filler:
   1. Fiber joint filler conforming to ASTM D-1751.

D. Sand base:
   1. Provide compacted sand base as specified in Section 02200 EARTHWORK.

PART 3 EXECUTION

3.01 EARTHWORK

A. Perform all earthwork necessary to conform to the finish grades.

B. Prepare base as specified in Section 02200 EARTHWORK.

C. Backfill and compact all voids remaining after forms are removed.

3.02 SIDEWALKS & CONCRETE DRIVEWAYS

A. Construct concrete pavement as shown on plans and in conformance with Section 801 and 803 of the MDOT Standard Specifications for Construction.

B. Sidewalk Dimensions:
   1. Width: minimum 5 feet.
   2. Thickness:
      a. 4” minimum, except where thickened at drive approaches.
      b. 6” minimum at drive approaches and street intersections as detailed on plans.

3. Cross slope: ¼ inch per foot.

C. Driveway Dimensions:
1. Width: minimum 12 feet
2. Thickness: 6” minimum

D. Joints:
1. Expansion joints:
a. Provide ½” expansion joints as follows:
i. At ends of thickened sidewalk.
ii. At a maximum spacing of 50 feet.
iii. Around permanent structures in sidewalk.
iv. Between back of curb and sidewalk.
v. Sidewalk ramps meet back of curb.
2. Plane of weakness joints:
a. At intervals equal to the sidewalk width, of at a maximum 10 feet.
b. In thickened sidewalk at outer edges of driveways.
c. Where permanent structures are located in sidewalk.

E. Finish: Finish surface in accordance with MDOT Specifications Section 803.

3.04 CURB AND GUTTER

A. Construct curb and gutter in accordance with Section 802 of the MDOT Standard Specifications.

B. All new curb and gutter shall be the Type, shown on the Plans.

C. Curb openings:
1. Construct curb openings as detailed on MDOT Standard Plans, R-29 series, Detail L for residential driveways.
2. Construct curb openings as detailed on MDOT Standard Plans, R-29 series, Detail M for commercial driveways.

D. Depressed curbs to 1" height at sidewalk ramps and driveway openings.

E. Joints:
1. Provide 1" expansion joints at:
a. Saw cut curb ends.
b. Curb radius spring points.
c. Approximately 10 feet each side of all catch basins.
2. Provide contraction joints at:
a. Opposite all transverse contraction joints in concrete pavement.
b. At 40 foot maximum intervals.
3. Joints shall confirm with MDOT Standard Plan R-30 series.

F. Finish: Finish surface in accordance with MDOT Specification 802.

3.05 SIDEWALK RAMPS

A. Construct ADA sidewalk ramps at all locations where new sidewalks meet curbs according to the current MDOT Standard Plan (R-28 Series).

B. Construct in accordance with MDOT Specification 803.

C. Dimensions:
1. Length: As shown on the Plans.
2. Width: 4 feet minimum.
3. Thickness: 6" minimum.

D. Joints:
   1. Provide control joints at 5 feet on center.
   2. Provide expansion joints at intervals not exceeding 50 feet and between all abutting buildings and structures.

E. Finish: Finish surface in accordance with MDOT Specification 803.

END OF SECTION

SECTION 03101

CONCRETE FORMWORK (ACI)

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:
Construction and removal of all cast-in-place concrete forms.

B. Related Sections:
1. Section 01025 - MEASUREMENT AND PAYMENT
2. Section 03201 - CONCRETE REINFORCEMENT
3. Section 03251 - CONCRETE ACCESSORIES
4. Section 03301 - CAST-IN-PLACE CONCRETE

1.02 QUALITY ASSURANCE

A. Codes and standards:
Perform all work in accordance with ACI 301 and ACI 347 of the American Concrete Institute (ACI) unless otherwise indicated on the Plans or in this Section.

B. Design:
The design, engineering and construction of formwork shall be the responsibility of the Contractor.

C. Notifications:
Notify the Engineer at least 24 hours in advance of placing concrete.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Formwork facing materials:
1. "As cast, smooth form finish" on all surfaces except footings as described in ACI 301-84, 10.2.2 Smooth Form Finish.
   a. Clean plywood, tempered concrete-form-grade hardboard, metal, plastic, paper, or other approved material.
   b. Supports capable of preventing excess deflection (See Table 4.3.1 for tolerances)
   c. Completely removable materials.
2. Obtain approval on quality of form face from Engineer prior to installing.
3. Clean, reasonably straight earth cuts, which meet the required tolerances, may be used to form footings with approval of the Engineer.

B. Form accessories:
1. Partially or fully embedded
   a. Commercially manufactured
2. Do not use non-fabricated wire.

C. Form ties:
1. Exposed concrete work:
   a. Single rod ties equipped with tightly fitted washers at the midpoint.
   b. Assembly should provide cone-shaped depressions at the form/concrete surface interface at least one inch diameter and 1½ inches deep to permit filling and patching.
2. Manufacturers:
   a. Dayton Sure-Grip
   b. Superior Concrete Accessories

c. Williams Form Engineering Corporation
d. or equal.

D. Form release agent:
1. Chemically neutral agent that will effectively prevent absorption of moisture and prevent bond with the concrete.
a. "Magic Kote" 43000 by Symons; or approved equal.
2. Non-toxic release agent for forms used on the interior surfaces of storage tanks designed to hold potable water supplies.
a. Amoco White Mineral Oil No. 31-USP, or equal.
3. Submit the name and sufficient documentation of the proposed form coating agent material to the Engineer for review.

PART 3 - EXECUTION

3.01 FORM CONSTRUCTION

A. General:
1. Provide all required materials in sufficient quantities so as not to delay the work.
2. Use forms rigid enough to maintain specified tolerances.
3. Design forms for the loads, lateral pressure, and allowable stresses outlined in ACI 347, Design of “Recommended Practice for Concrete Formwork” and in accordance with local building codes.

B. Formwork Facing
1. Arrange in an orderly and symmetrical manner
2. Keep the number of seams to a practical minimum

C. Form Ties
1. Construct to prevent appreciable spalling at the faces during removal of the end or end fasteners.
2. Terminate embedded ties at least twice the minimum dimension of the tie and never less than ¾ inch from the formed face.
3. Exposed Concrete
a. Do not leave any metal within 1½ inches of the surface for concrete exposed to water, weather, freeze/thaw and similar exposures.
4. Provide positive pressure at all joints to preclude mortar/grout leakage.

D. Forms
1. Install forms sufficiently tight to prevent loss of mortar from the concrete.
2. Permanently exposed surfaces
a. Provide 1" chamfer strips in the corners of forms.
b. Interior corners on such surfaces and the edges of formed joints will not require beveling.
c. Exposed surfaces include surfaces exposed to view or water.
3. Provide positive means of adjustment (wedge or jacks) of shores and struts.
a. Take up all settlement during the concrete placing operation.
b. Securely brace forms against lateral deflections.
c. Camber the formwork to compensate for anticipated deflection.
4. Temporary openings
a. Provide at the base of columns and wall forms for observation.
b. Where necessary to facilitate cleaning and observation.

5. Hold forms against the hardened concrete to maintain a true surface and to prevent offsets or loss of mortar at the construction joint.

6. Construct wood forms for wall openings to facilitate loosening and counteract swelling of the forms.
7. Adjust wedges if necessary to align forms.
8. Anchor formwork to prevent upward or lateral movement .
9. Runways
   a. Place directly on the formwork or structural member
   b. Do not rest on the reinforcing steel.
10. Form surfaces:
    a. Cover with an approved coating material in accordance with the manufacturer's recommendations.
    b. Do not allow coating to come in contact with reinforcing steel or hardened concrete.
11. Coordinate work with other trades.

E. Tolerances:
1. Construct formwork in conformance with the tolerance limits listed in Table 4.3.1 (ACI 301).

TABLE 4.3.1 - TOLERANCES FOR FORMED SURFACES

1. Variation from plumb:	
A. In the lines and surfaces of columns, piers, walls, and in arrises:	
In 10 ft of length	¼ in.
Maximum for the entire length	1 in.
B. For exposed corner columns, control-joint grooves, and other conspicuous lines:	
In any 20 ft length	¼ in.
Maximum for the entire length	½ in.
2. Variation from the level or from the grades specified in the contract documents:	
A. In slab soffits, ceilings, beam soffits and in arrises, measured before removal of supporting shores	
In any 10 ft of length	¼ in.
In any bay or in any 20 ft length	⅜ in.
Maximum for the entire length	¾ in.
B. In exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines:	
In any bay or in 20 ft length	¼ in.
Maximum for the entire length	½ in.
3. Variation of the linear building lines from established position in plan and related position of columns, walls, and partitions:	
In any bay	½ in.
In any 20 ft of length	½ in.
Maximum for the entire length	1 in.
4. Variation in the sizes and location of sleeves, floor openings, and wall openings	±¼ in.
5. Variation in cross-sectional dimensions of columns and beams and in the thickness of slabs and walls:	

Minus	¼ in.
Plus	½ in.

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6. Footings*
   A. Variations in dimensions in plan:

Minus	½ in.
Plus	2 in.

   B. Misplacement or eccentricity:

2 percent of the footing width in the direction of misplacement but not more than	2 in.

   C. Thickness:

Decrease in specified thickness	5%
Increase in specified thickness	No limit

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7. Variation in steps:
   A. In a flight of stairs:

Rise	±⅛ in.
Tread	±¼ in.

   B. In consecutive steps:

Rise	±$^{1}/_{16}$ in.
Tread	±⅛ in.

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*Tolerances apply to concrete dimensions only, not to positioning of vertical reinforcing steel, dowels, or embedded items.

2. Maximum deflection of forms:
   a. $^{1}/_{240}$ of span or ¼ inch, whichever is less.
3. Establish and maintain control points and bench marks to check tolerances until final completion.

F. Inserts, embedded parts, and openings:
1. Coordinate the location of inserts, embedded parts, openings, and recesses with the respective trades.
2. Set and build into the work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete.
3. Use setting drawings, diagrams, instructions and directions provided by suppliers of the items.

G. Field quality control:
1. Clean and repair surfaces of forms to be re-used in the work.
2. Do not use "patched" forms for exposed concrete surfaces.
3 Inform Engineer 24 hours to placing concrete to allow for formwork inspection.

3.02 REMOVAL OF FORMS AND SUPPORTS

A. Forms not supporting the weight of the concrete:
1. Remove when the concrete has hardened sufficiently to prevent damage.
B. Forms and shoring used to support the weight of structural members:
1. Do not remove until the concrete has reached ___ % of the design strength.

C. If compression cylinder tests are not available, keep forms and supports in place for not less than the following periods of time:

Where design live load is:

	Less than dead load:	Greater than dead load:
Building walls: 12-24 hr		
Sides of beams and girders: 12-24 hr		
Floor slabs:		
Under 10 ft clear span between supports	4 days	3 days
10 to 20 ft clear span between supports	7 days	4 days
Over 20 ft clear span between supports	10 days	7 days

a. If high-early-strength concrete is used, or the ambient temperatures remain below 50°F, these periods may be modified at the discretion of the Engineer.

END OF SECTION