**ADDENDUM NUMBER 2**

**For**

**Oak Creek Water and Sewer Utility, Oak Creek Wisconsin**

**Pre-selection Documents**

**For The**

**Prestressed Concrete Storage Tank**

FROM: CH2M HILL
135 South 84th Street
Milwaukee, WI 53214

TO: Plan Holders

DATE: April 29, 2015

The following changes, additions, and deletions are hereby made a part of the project Bidding Requirements and Contract Documents as fully and completely as if the same were set forth therein. Acknowledge receipt and acceptance of this Addendum in the space provided on the BID FORM. Failure to do so may result in rejection of the Bid.

## GENERAL

1. Bidders are reminded of specification section 00 11 57, paragraphs 6.2.6 and 6.2.8. Exceptions or deviations from the drawings and specifications will be considered as part of the evaluation process. Alternative design details that provide a better product are encouraged and will be considered in the selection process.

## SPECIFICATIONS

SECTION 00 11 57 – REQUEST FOR PROPOSALS AND STATEMENT OF QUALIFICATIONS

1. **Section 6.5 Warranty Information:** Add the following paragraph.
   "Clearly state any suggested changes to the Warranty language. They will be considered during the evaluation process."

2. **Section 6.6 Project Cost:** Add the following item 3.

   3. The basis for project cost shall be clearly stated. If there are deviations from the Drawings and Specifications, those deviations shall be clearly stated, details on the deviation shall be provided, and a statement shall be provided on what deviations are used to base project cost on.

## DRAWINGS

DRAWINGS 01-G-12

1. Replace this drawing with the attached revised drawing 01-G-12. Flood elevations were deleted. The project site is not in a flood plain.

DRAWINGS 40-SD-231, 40-SD-301

1. Replace these drawings with attached revised drawings. Tank floor and ground elevations are clarified.

**End of Addendum 2**

# DESIGN CRITERIA

1. APPLICABLE CODE: 2009 INTERNATIONAL BUILDING CODE (IBC), AS AMENDED BY THE STATE OF WISCONSIN AND ALL OTHER APPLICABLE LOCAL AGENCIES.

2. REFER TO THE DRAWINGS FOR ADDITIONAL AND SPECIFIC STRUCTURE LOADINGS AND REQUIREMENTS.

3. ALL LOADS SHOWN ARE SERVICE LEVEL (UNFACTORED) UNLESS SPECIFICALLY NOTED OTHERWISE.

4. ROOF LOADS:

| | |
|---|---|
| GROUND SNOW LOAD, Pg | 30 PSF |
| TERRAIN CATEGORY | B |
| SNOW EXPOSURE FACTOR, Ce | 1.0 |
| THERMAL FACTOR, Ct | 1.1 |
| SLOPE REDUCTION FACTOR, Cs | 1.0 |
| IMPORTANCE FACTOR, Is | 1.1 |
| MINIMUM FLAT ROOF SNOW LOAD, Pf | 25.0 PSF |

SEE SNOW DRIFT DIAGRAMS ON ROOF PLAN.
FOR AREAS WITH INCREASED DRIFT LOADS.

| | |
|---|---|
| LIVE LOADS | 20 PSF |
| COLLATERAL LOADS | 15 PSF |
| ROOF SUPPORTED EQUIPMENT AND PIPING ADDITIONAL | |

5. FLOOR LIVE LOADS:

| | |
|---|---|
| OFFICE | NA |
| ELECTRICAL ROOM | 300 PSF |
| MECHANICAL ROOM | 200 PSF |
| CORRIDORS, EXITS, STAIRS | 100 PSF |
| WALKWAYS AND ELEVATED PLATFORMS | 100 PSF |
| OTHER AREAS | 200 PSF |

6. LATERAL BUILDINGS FORCE-RESISTING SYSTEMS: ORDINARY REINFORCED MASONRY SHEAR WALLS

7. WIND LOADS:

| | |
|---|---|
| BASIC WIND SPEED (3-SECOND GUST) | = 90 MPH |
| EXPOSURE CATEGORY | = B |
| INTERNAL PRESSURE COEFFICIENT, GCPI | = +0.18 |
| OCCUPANCY CATEGORY | = IV |
| IMPORTANCE FACTOR, IW | = 1.15 |

8. SEISMIC LOADS:
MAPPED SPECTRAL RESPONSE ACCELERATIONS

| | |
|---|---|
| $S_S$ | = 0.112G |
| $S_1$ | = 0.046G |

DESIGN SPECTRAL RESPONSE ACCELERATIONS

| | |
|---|---|
| $S_{DS}$ | = 0.119G |
| $S_{D1}$ | = 0.074G |

| | |
|---|---|
| SITE CLASS | = D |
| OCCUPANCY CATEGORY | = IV |
| SEISMIC DESIGN CATEGORY | = C |
| IMPORTANCE FACTOR, IE | = 1.50 |

BUILDING STRUCTURES HAVE BEEN ANALYZED USING THE EQUIVALENT LATERAL FORCE PROCEDURES OF ASCE 7.

9. EQUIPMENT LOADS:
HIGH LIFT PUMP STATION — BRIDGE CRANE 5 TON CAPACITY

10. SOIL DESIGN PARAMETERS:

| | |
|---|---|
| A. NET ALLOWABLE SOIL BEARING PRESSURES: | |
| BUILDING FOUNDATION | 4 KSF |
| TANK FOUNDATION | 3 KSF |
| B. VERTICAL SURCHARGE: | 2 FT OF SOIL WEIGHT |
| C. NATIVE SOIL UNIT WEIGHT: | 120 PCF |
| D. GROUND WATER (GW) ELEVATION: | EL 85.00 |

11. FROST DEPTH: 4 FT

# GENERAL INFORMATION

1. FOR ABBREVIATIONS NOT LISTED, SEE ASME Y14.38 "ABBREVIATIONS AND ACRONYMS: PUBLICATION AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).

2. DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE INDIVIDUALLY CALLED OUT.

3. VERIFY FINAL OPENING DIMENSIONS IN WALLS, SLABS, AND DECKS WITH OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION OF THESE ELEMENTS.

4. FOR NUMBER, TYPE, SIZE, ARRANGEMENT, AND/OR LOCATION OF EQUIPMENT PADS, SEE OTHER DISCIPLINE DRAWINGS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO PLACING SLABS, WALLS AND FOUNDATIONS. COORDINATE PIPING OPENINGS WITH OTHER DISCIPLINE DRAWINGS.

5. DO NOT CUT OR MODIFY STRUCTURAL MEMBERS FOR PIPES, DUCTS, ETC, UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.

6. VISITS TO THE JOB SITE BY THE ENGINEER TO OBSERVE THE CONSTRUCTION DO NOT IN ANY WAY MEAN THAT ENGINEER IS GUARANTOR OF CONSTRUCTOR'S WORK, NOR RESPONSIBLE FOR THE COMPREHENSIVE OR SPECIAL INSPECTIONS, COORDINATION, SUPERVISION, OR SAFETY AT THE JOB SITE.

7. INFORMATION (DETAILING, DIMENSIONS, CONFIGURATIONS, AND ELEVATIONS, ETC.) OF EXISTING CONSTRUCTION SHOWN REFLECTS AVAILABLE EXISTING DESIGN DOCUMENTS, AND DOES NOT NECESSARILY REPRESENT THE AS-CONSTRUCTED CONDITIONS. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS, ELEVATIONS AND DETAILING OF THE EXISTING STRUCTURES PRIOR TO UNDERTAKING ANY WORK THAT IS AFFECTED BY THE EXISTING STRUCTURE.

# FOUNDATIONS

1. REFER TO GEOTECHNICAL DATA REPORT SUBSURFACE EXPLORATION AND GEOTECHNICAL ENGINEERING ANALYSIS BY CH2M DATED APRIL 24, 2015.

2. EXCAVATIONS SHALL BE SHORED TO PREVENT SUBSIDENCE OR DAMAGE TO ADJACENT EXISTING STRUCTURES, ROADS, UTILITIES, ETC.

3. FOUNDATION BEARING SURFACES SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF FORMWORK OR REINFORCING STEEL. THE OBSERVATION SHALL VERIFY IF THE ACTUAL EXPOSED SUBGRADE IS AS ANTICIPATED BY THE SITE SPECIFIC BORINGS AND DATA REPORTS.

4. NO BACKFILL SHALL BE PLACED BEHIND WALLS UNTIL THE WALLS HAVE ATTAINED 100 PERCENT AND TOP SUPPORTING SLAB'S CONCRETE HAS ATTAINED 80 PERCENT OF THEIR SPECIFIED 28 DAY COMPRESSIVE STRENGTH, OR UNTIL TOP-OF-WALL FRAMING SYSTEMS, INCLUDING STEEL OR WOOD DIAPHRAGMS, HAVE BEEN COMPLETED.

5. NO BACKFILL SHALL BE PLACED BEHIND CANTILEVERED, FREE TOP WALLS UNTIL THE CONCRETE HAS ATTAINED 100 PERCENT OF ITS SPECIFIED 28 DAY COMPRESSIVE STRENGTH.

# FORMWORK, SHORING, AND BRACING

1. STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. DESIGN SHOWN DOES NOT INCLUDE NECESSARY COMPONENTS OR EQUIPMENT FOR STABILITY OF THE STRUCTURES DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.

2. TEMPORARY SHORING SHALL REMAIN IN PLACE UNTIL ELEVATED CONCRETE FLOOR OR SLABS HAVE REACHED 80 PERCENT OF THE 28 DAY COMPRESSIVE STRENGTH AS DETERMINED BY FIELD CYLINDER BREAKS.

3. "BURY" BARS OR "CARRIER" BARS ARE NOT ALLOWED FOR THE BOTTOM MATS OF REINFORCING IN ALL ELEVATED SLABS AND ARE NOT ALLOWED FOR THE TOP MATS OF REINFORCING IN ELEVATED SLABS LESS THAN 12 INCHES THICK.

# CONCRETE REINFORCING

1. REINFORCING STEEL:

| | |
|---|---|
| TYPICAL: | ASTM A615, GRADE 60 |
| WELDED: | ASTM A706, GRADE 60 (WELDING IS ONLY PERMITTED WITH WRITTEN PERMISSION FROM ENGINEER) |

2. FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI MSP-1 "MANUAL OF STANDARD PRACTICE"AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".

3. MINIMUM REINFORCING FOR CONCRETE WALLS AND SLABS SHALL BE AS FOLLOWS:

| THICKNESS | REINF EACH WAY | LOCATION |
|---|---|---|
| 6" | #4@12" | CENTERED |
| 8" | #5@12" | CENTERED |
| 10" | #4@12" | EACH FACE |
| 12" | #5@12" | EACH FACE |

PROVIDE LARGER SIZES AND MORE REINFORCING IN SECTIONS OF CONCRETE WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.

4. CONCRETE COVER FOR REINFORCING, UNLESS SHOWN OTHERWISE, SHALL BE:

| | |
|---|---|
| WHEN PLACED ON GROUND: | 3" |
| INTERIOR, FINISHED, HUMIDITY CONTROLLED AREAS: | |
| WALLS, SLABS AND JOISTS | 3/4" |
| BEAM STIRRUPS AND COLUMN TIES | 1 1/2" |
| OTHER CONCRETE SURFACES | 2" |

5. 90 DEGREE BENDS, UNLESS OTHERWISE SHOWN, SHALL BE ACI 318 STANDARD HOOKS.

6. WALL FOOTING CORNER AND INTERSECTION REINFORCEMENT BARS SHALL BE EXTENDED INTO CONNECTING FOOTINGS AND LAPPED ON THE OPPOSITE FACE OF THE CONNECTING FOOTING. OUTSIDE FACE WALL FOOTING REINFORCEMENT SHALL BE LAPPED WITH CORNER BARS. ALL WALL FOOTING REINFORCEMENT SHALL BE CONTINUOUS THROUGH COLUMNS OR PILASTERS FOOTINGS.

7. LAP VERTICAL WALL BARS WITH DOWELS FROM BASE SLABS AND EXTEND INTO TOP FACE OF ROOF SLABS AND LAP WITH TOP SLAB REINFORCEMENT.

8. LOCATE ELEVATED SLAB AND BEAM TOP BAR SPLICES AT MIDSPAN AND BOTTOM BAR SPLICES AT SUPPORTS.

9. REINFORCING STEEL FOR FOOTINGS AND SLABS ON GRADE SHALL BE ADEQUATELY SUPPORTED ON BAR SUPPORTS WITH SPACERS TO KEEP REINFORCING ABOVE THE PREPARED GRADE. LIFTING REINFORCING OFF GRADE DURING CONCRETE PLACEMENT IS NOT PERMITTED.

# CONCRETE REINFORCING (CONTINUED)

12. PROVIDE ADDITIONAL REINFORCING AT ALL OPENINGS PER (0330-001). PROVIDE ADDITIONAL REINFORCING AT ALL HORIZONTAL CONSTRUCTION JOINTS PER (0330-004). DETAIL ALL CORNER AND INTERSECTING WALL REINFORCEMENT PER (0330-003). PROVIDE VERTICAL WALL REINFORCING AND DOWEL PLACEMENT PER (0330-005). PROVIDE WALL CONSTRUCTION JOINT SPACING PER (0315-131). PROVIDE SLAB CONSTRUCTION JOINT PER (0315-142).

13. PROVIDE WATERSTOP IN WALL PER DETAIL (0315-001), (0315-011) AND (0315-012).

14. FOR CONDUIT EMBEDMENTS IN WALL OR SLABS, SEE (0330-084).

15. REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:

| CONCRETE DESIGN STRENGTH = 4,000 PSI AT 28 DAYS[3] | | GRADE 60 REINFORCING STEEL | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| BAR SIZE | | #3 | #4 | #5 | #6 | #7 | #8 | #9 | #10 | #11 |
| LAP SPLICE LENGTH | | | | | | | | | | |
| SPACING = 3" | TOP BAR [2] | 1'-4" | 1'-8" | 2'-1" | 3'-0" | 5'-2" | 6'-8" | 8'-6" | 10'-10" | 13'-4" |
| | OTHER BAR | 1'-4" | 1'-4" | 1'-8" | 2'-4" | 4'-0" | 5'-2" | 6'-7" | 8'-4" | 10'-3" |
| SPACING = 4" | TOP BAR [2] | 1'-4" | 1'-8" | 2'-0" | 2'-5" | 3'-10" | 5'-0" | 6'-5" | 8'-1" | 10'-0" |
| | OTHER BAR | 1'-4" | 1'-4" | 1'-7" | 1'-10" | 3'-0" | 3'-11" | 4'-11" | 6'-3" | 7'-8" |
| SPACING ≥ 6" | TOP BAR [2] | 1'-4" | 1'-8" | 2'-0" | 2'-5" | 3'-6" | 4'-0" | 5'-0" | 6'-2" | 7'-5" |
| | OTHER BAR | 1'-4" | 1'-4" | 1'-7" | 1'-10" | 2'-9" | 3'-1" | 3'-10" | 4'-9" | 5'-8" |
| EMBEDMENT LENGTH | | | | | | | | | | |
| SPACING = 3" | TOP BAR [2] | 1'-0" | 1'-3" | 1'-8" | 2'-4" | 4'-0" | 5'-2" | 6'-7" | 8'-4" | 10'-3" |
| | OTHER BAR | 1'-0" | 1'-0" | 1'-3" | 1'-10" | 3'-1" | 4'-0" | 5'-1" | 6'-5" | 7'-11" |
| SPACING = 4" | TOP BAR [2] | 1'-0" | 1'-3" | 1'-7" | 1'-10" | 3'-0" | 3'-11" | 4'-11" | 6'-3" | 7'-8" |
| | OTHER BAR | 1'-0" | 1'-0" | 1'-3" | 1'-5" | 2'-4" | 3'-0" | 3'-10" | 4'-10" | 5'-11" |
| SPACING ≥ 6" | TOP BAR [2] | 1'-0" | 1'-3" | 1'-7" | 1'-10" | 2'-9" | 3'-1" | 3'-10" | 4'-9" | 5'-8" |
| | OTHER BAR | 1'-0" | 1'-0" | 1'-3" | 1'-5" | 2'-1" | 2'-5" | 3'-0" | 3'-8" | 4'-5" |

1. LAP LENGTHS ARE BASED ON MINIMUM CONCRETE COVER OF 2". LONGER LENGTHS ARE REQUIRED FOR CONCRETE COVER LESS THAN 2".
2. TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.
3. WHERE 3000 PSI CONCRETE IS USED, INCREASE ABOVE LENGTHS BY 16 PERCENT. WHERE 3500 PSI CONCRETE IS USED, INCREASE ABOVE LENGTHS BY 7 PERCENT.

# CAST IN PLACE CONCRETE

1. 28-DAY COMPRESSIVE STRENGTHS:

| | |
|---|---|
| BUILDING STRUCTURES TYPICAL: | 4500 PSI |
| WALL SLURRY MIXTURE: | SAME AS WALL CONCRETE |
| CONCRETE FILL: | 3000 PSI |
| CURBS AND SIDEWALKS: | 5000 PSI |
| DUCT BANKS AND PIPE ENCASEMENTS NOT INTEGRAL WITH FOUNDATIONS: | 3000 PSI |

2. DESIGN STRENGTHS ARE SAME AS 28-DAY COMPRESSIVE STRENGTHS.

3. CONTINUOUS WATERSTOP AS SPECIFIED SHALL BE INSTALLED IN CONSTRUCTION JOINTS OF WATER HOLDING BASINS, CHANNELS, AND BELOW GRADE STRUCTURES, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.

4. CONSTRUCTION JOINTS INDICATED ARE SUGGESTED LOCATIONS. CONTRACTOR MAY REVISE LOCATION OF JOINTS, SUBJECT TO SPECIFIED REQUIREMENTS. LAYOUT SHOWING ALL CONSTRUCTION JOINT LOCATIONS SHALL BE SUBMITTED FOR REVIEW BY ENGINEER.

5. ROUGHEN AND CLEAN CONSTRUCTION JOINTS IN WALLS AND SLABS AS SPECIFIED PRIOR TO PLACING ADJACENT CONCRETE.

6. COORDINATE PLACEMENT OF OPENINGS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS AND INSERTS PRIOR TO PLACEMENT OF CONCRETE.

7. NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO THE CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.

8. DO NOT PLACE CONDUIT PARALLEL TO BEAM OR COLUMN REINFORCEMENT UNLESS SPECIFICALLY INDICATED IN DRAWINGS.

9. PATCH FORM TIE HOLES IN ACCORDANCE WITH DETAILS (0310-051) AND/OR (0310-052).

| NO. | DATE | REVISION | DR | CHK | APVD |
|---|---|---|---|---|---|
| 2 | 04 29 15 | ADDENDUM NO. 2 - REISSUE ENTIRE DRAWING | DRL | GH BURLEY | APVD |
| 1 | 04 27 15 | ADDENDUM NO. 1 - REVISED NOTE | DRL | PAK | BY |
| DSGN | DR LANGE | | DAK | | |



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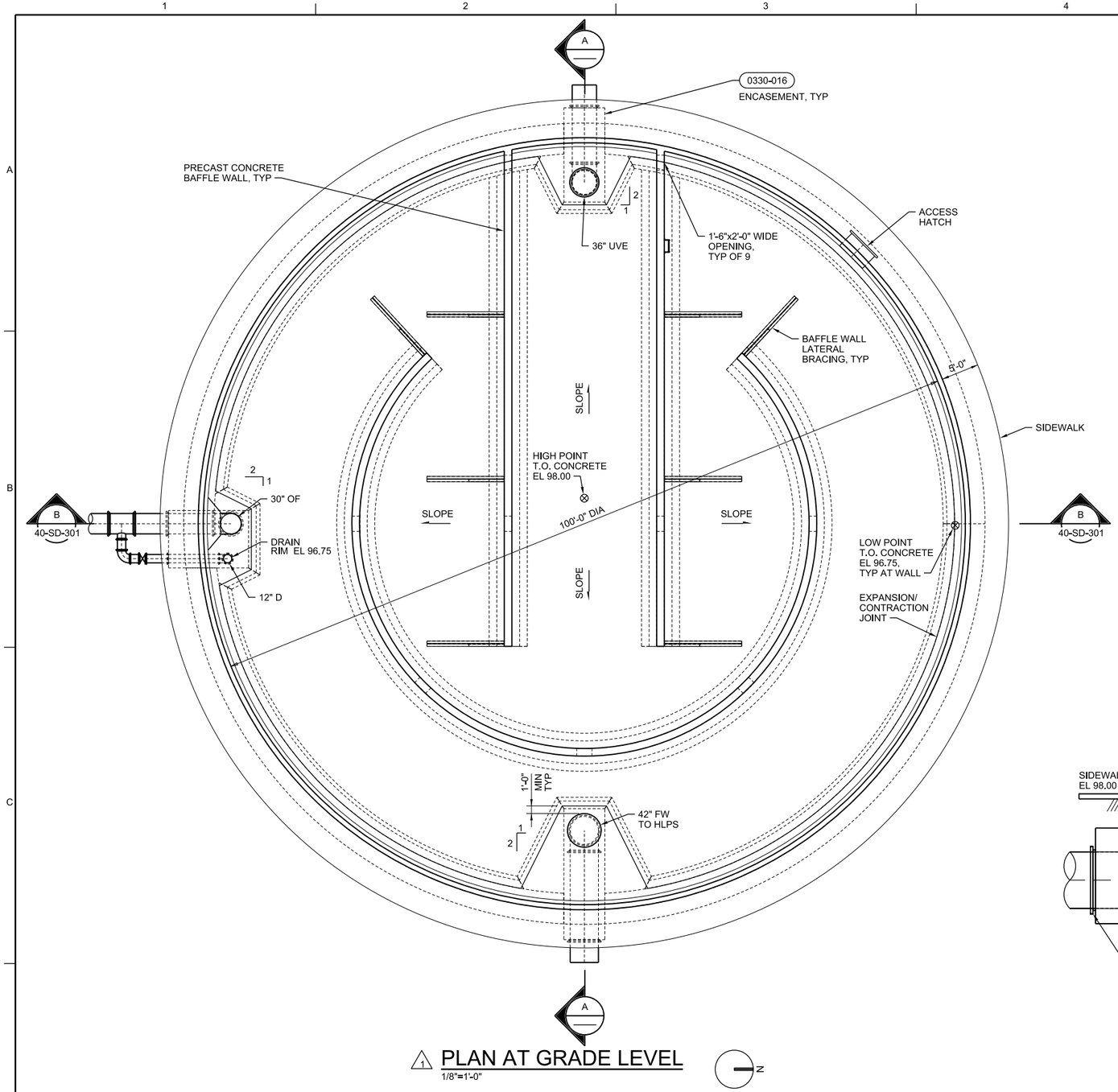
OAK CREEK WATER AND SEWER UTILITY
2016 WATER TREATMENT PLANT IMPROVEMENTS
CITY OF OAK CREEK, WISCONSIN

GENERAL

STRUCTURAL NOTES 1 of 2

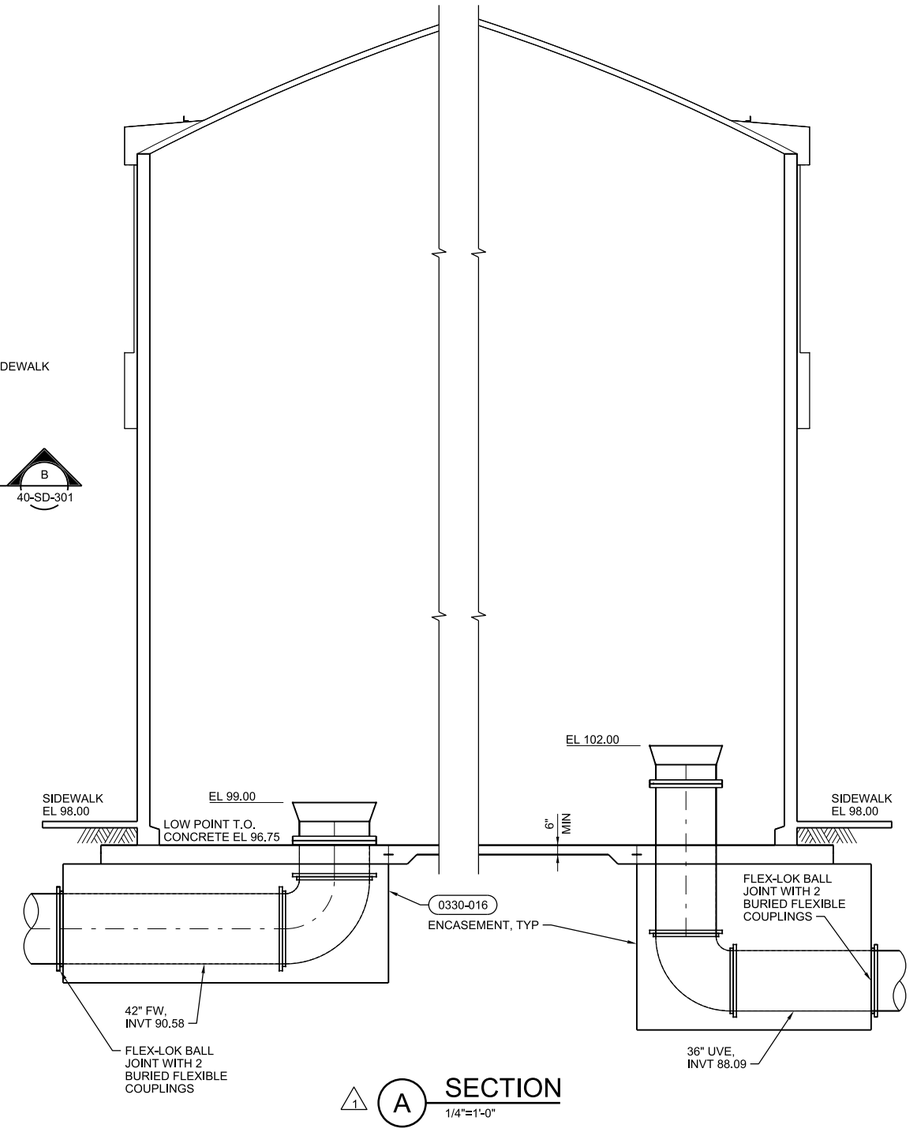
NO SCALE
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

| | |
|---|---|
| DATE | MARCH 2015 |
| PROJ | 653463 |
| DWG | 01-G-012 |
| SHEET | of |




1 PLAN AT GRADE LEVEL
1/8"=1'-0"

N




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

| NO. | DATE | REVISION | BY | APVD |
|---|---|---|---|---|
| 2 | 04 29 15 | ADDENDUM NO. 2 - REISSUE ENTIRE DRAWING | DAK | DRL |
| 1 | 04 27 15 | ADDENDUM NO. 1 - REISSUE ENTIRE DRAWING | PAK | DRL |

DSGN DR LANGE | DR PA KARABAN | CHK APVD



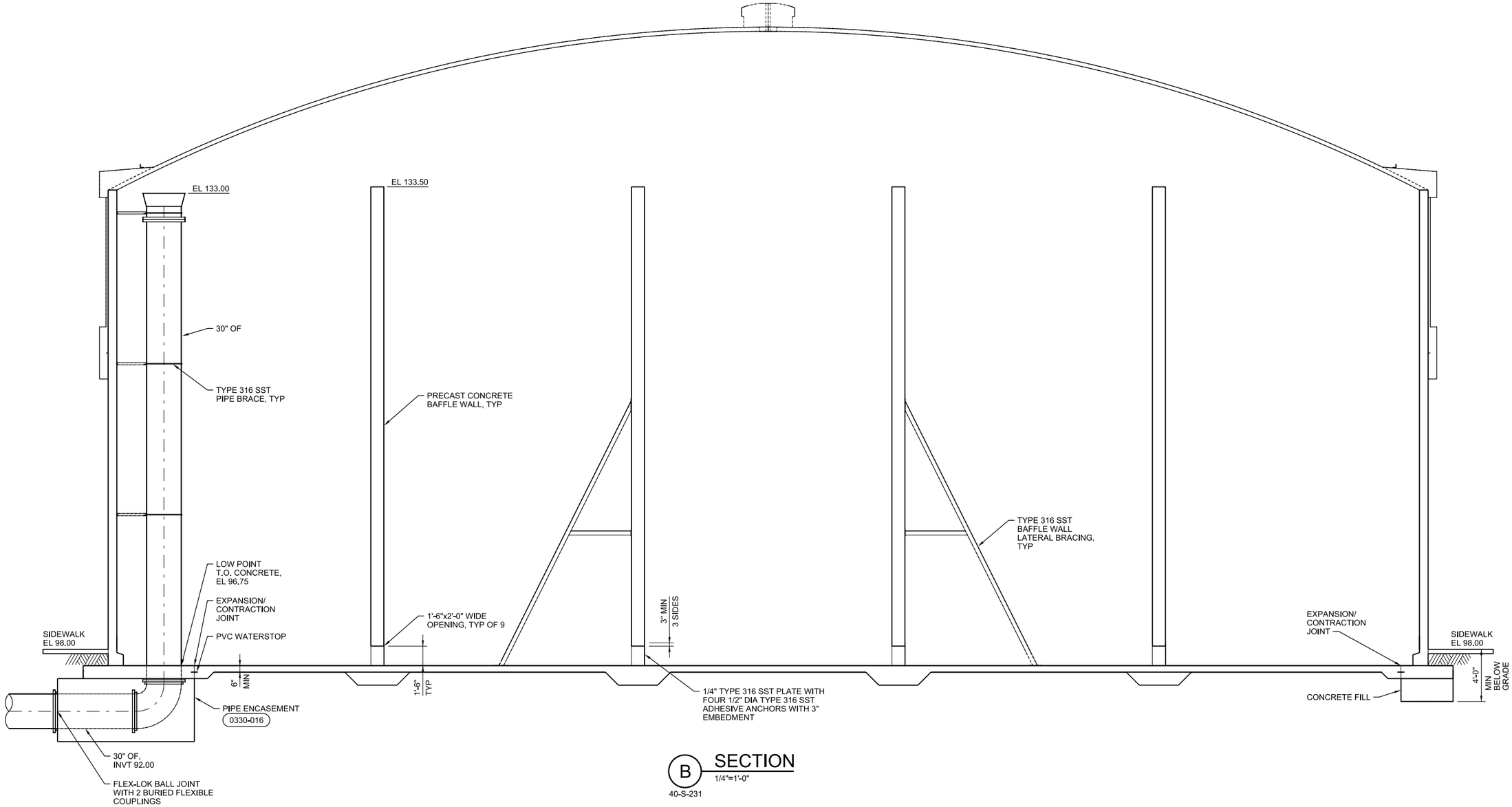
OAK CREEK WATER AND SEWER UTILITY
2016 WATER TREATMENT PLANT
IMPROVEMENTS
CITY OF OAK CREEK, WISCONSIN

CH2MHILL®

STRUCTURAL/PROCESS MECHANICAL

# STORAGE TANK PLAN AT GRADE LEVEL AND SECTION

| | |
|---|---|
| 1/8"=1'-0" | |
| VERIFY SCALE | |
| BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" | |
| DATE | MARCH 2015 |
| PROJ | 653463 |
| DWG | 40-SD-231 |
| SHEET | of |




B SECTION
1/4"=1'-0"
40-S-231

| NO. | DATE | DSGN | DR | CHK | APVD |
|---|---|---|---|---|---|
| 2 | 04 29 15 | ADDENDUM NO. 2 - REISSUE ENTIRE DRAWING | DAK | DRL | APVD |
| 1 | 04 27 15 | ADDENDUM NO. 1 - REISSUE ENTIRE DRAWING | PAK | DRL | BY |
| | | REVISION | | | |

DR LANGE
PA KARABAN



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STRUCTURAL/ PROCESS MECHANICAL
STORAGE TANK
SECTION
2

1/4"=1'-0"
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
0 1"

| | |
|---|---|
| DATE | MARCH 2015 |
| PROJ | 653463 |
| DWG | 40-SD-301 |
| SHEET | of |

FILENAME: 40-SD-301_653463.dgn PLOT DATE: 4/29/2015 PLOT TIME: 12:53:39 PM