ARCHITECTURAL DESIGN ASSOCIATES, P.C.
7501 'O' STREET, SUITE 105
LINCOLN, NE. 68510

January 14, 2016
LINCOLN PUBLIC SCHOOLS
NUTRITION SERVICES – FOOD STORES WAREHOUSE
AND HUMANN ELEMENTARY TEMP. SCHOOL
LINCOLN, NEBRASKA

ADDENDUM #2

This addenda is issued by the Architect to all known bidders before receipt of proposals. Bidders shall acknowledge the receipt of this Addendum on their bid form and all information and instructions given herein shall become a part of the Contract Documents.

SPECIFICATIONS:

Item No. 2-1: 00 01 10 – Table of Contents

A. Add the following spec sections to the table of contents:
    1. 03 36 00 - Special Concrete Floor Finishes.
    2. 28 05 00 – Common Work Results for Electronic Security.
    3. 28 13 00 – Electronic Access Control System.
    4. 31 66 15 – Helical Foundations
    5. 33 46 13 – Foundation Drainage (This was included in Addenda No. 1).

Item No. 2-2: 01 74 19 – Construction Waste Management and Disposal

A. At Section 2.01 'Waste Management Plan Implementation', add the following:
"G. Revenue from sale of recycled materials shall be passed on to LPS.
    1. Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to LPS.
    2. Revenue from sale of recycled materials shall be transmitted by check directly to LPS, unless other procedures are approved by LPS.

B. At Section 2.01 'Waste Management Plan Implementation', add the following:
"H. Categories which may or may not have the ability for local recycling. The following shall not be disposed of in landfills or by incineration, unless there is no locally available means of recycling:
    1. Acoustic ceiling tile.
    2. Carpet.
    3. Unpainted gypsum board scrap.
    4. Aluminum window frames and glass.

Item No. 2-3: 03 30 00 – Cast-in-Place Concrete

A. At section 2.07 'Curing-Sealing-Hardener Materials', at item B 'Curing and Sealing Compound', add the following: "3. Approved products: "BASF – Kure-n-Seal WB"

B. At section 2.07 'Curing-Sealing-Hardener Materials', add the following: "F. Note that Hardening/Sealing agent and Sealer for concrete slab in Dry Storage Room 143 is specified in section 03 36 00 – Special Concrete Floor Finishes."

C. At section 3.02 'Preparation', add the following: "F. Where existing concrete is to be exposed: 1. Restore surface to soundness by patching, grouting, filing cracks and holes. 2. Use power tools or strippers to remove any incompatible sealers or coatings. 3. Remove all dirt, dust, oil, grease, asphalt and foreign matter. Clean with detergent as required. 4. Apply curing and sealing compound per manufacturer's current written recommendations."

Item No. 2-4: 03 36 00 – Special Concrete Floor Finishes

A. Add the attached Spec Section 03 36 00 – Special Concrete Floor Finishes.

Item No. 2-5: 03 41 00 – Precast Structural Concrete

B. At section 2.03 'Materials', Item A, add the following: Type I or Type III cement are acceptable.

Item No. 2-6 03 66 15 – Helical Foundations

A. Add specification section 31 66 15 – Helical Foundations

Item No. 2-7: 07 42 13 – Metal Wall Panels

A. At section 2.01 'Manufacturers', Item B 'Design for side wall and soffits', Item -1 'Other Acceptable Manufacturers', add the following: "i. Firestone UC500' as an approved manufacturer and product – provided it meets the specification requirements."
B. At section 2.04 'Accessories', add the following: "E. Vapor Barrier at Freezer and Cooler insulated wall panels: W.R. Meadows – 'Air-Shield – Self-adhering Air-Vapor Barrier and Liquid Moisture Barrier' – width as required – thickness: 40 mil – water vapor permeance: 0.035 perms – tensile strength: 4,000 psi – elongation film: 400 – puncture resistance: 40 lbf min."
C. At section 3.02 'Installation', add the following: "F Install vapor barrier, seals, sealants and gaskets as needed for a complete air and vapor-tight installation around each freezer and cooler system including walls, floors and roof elements."

Item No. 2-8: 07 53 23 – EPDM Roofing

A. At section 2.04 'Roof Insulation and Cover Boards', at item A 'Polyisocyanurate Board Insulation', at item 3 'Compressive Strength, add the following: "20 psi is acceptable provided the insulation meets the Manufacturer's warranty requirements."
B. At section 2.04 'Roof Insulation and Cover Boards', at item B 'Wood Fiber Cover Board', add the following: "6. Other Acceptable Cover Board Products: Isogard HD, HailGard and Dens-Deck.
7. Provide cover board product and installation as required to meet manufacturer's warranty."

Item No. 2-9: 07 56 00 – Fluid-Applied Roofing

A. At section 1.07 'Warranty', under item B, add the following: "3. The Warranty shall be manufacturer's standard warranty that includes payment for labor and material costs."
B. At section 2.01 'Manufacturers', at item A, add the following: "3. Firestone is an approved manufacturer, and their AcryliTop PC100 is an approved system - provided it meets the specification requirements."
C. At section 3.02 'Preparation', add the following:
"D. Clean existing EPDM membrane per coating manufacturer's current written recommendations.
E. Re-seam all existing roof membrane seams and flashings per manufacturer's current written recommendations. Include primer, membrane adhesive and continuous EPDM flashing membrane.
F. See EPDM Roof section 07 53 23 for products required in re-seaming process."

Item No. 2-10: 07 72 00 – Roof Hatch

A. At section 2.01- E 'Safety Railing System', add 'Safe Pro – Roof Hatch Safety Rails' as an approved product.
B. At Section 2.01 'Roof Hatches', add the following;
"G. Safety Post: Provide spring loaded extension device with telescoping tubular section:
1. Bilco Co.; Model No. LU-2 hot dipped galvanized steel or equal.
2. Adjustable mounting hardware for attachment to ladder rungs.
3. Telescoping design with spring balance.
4. Automatically locks in the fully raised position.
5. Release lever allows the post to be lowered to its retracted position."

Item No. 1-11: 07 90 05 – Joint Sealants

A. At Section 3.03 'Installation', at Item I (from addenda No. 1) add the following: "Include backer rod at freezer and cooler control and construction joints - maintain joint filler depth of 1 inch and as required by filler manufacturer's current written recommendations."

Item No. 2-12: 08 43 13 – Aluminum-Framed Storefronts

A. At section 2.01 'Basis of Design' at item A – 1, change the basis of design from Kawneer 451UT to 451T.
B. At section 2.02 'Basis of Design', at item A – 1, change the basis of design from Kawneer 400 to 450 and at item A – 2, change the Vertical Mullion Dimension from 4" to 4 1/2".
C. At section 2.05 'Components', item E 'Alum. break metal trim' at item 1, change the thickness to 0.063 inch.

Item No. 2-13: 09 05 61 – Common Work Results for Floor Preparation

A. At section 1.01, item E – 'Remediation of Concrete Floor Slabs due to moisture' – Add the following paragraph: "2. Moisture and alkalinity problems are not expected at the existing floor slab. Include moisture and alkalinity testing of the existing floor slabs in the contract. If testing reveals the need for

remediation of existing slabs (due to unsatisfactory moisture or alkalinity conditions), the remediation work will be included as a change to the contract once the scope of remediation work is determined."

B. At section 3.01, item B – 1, delete paragraph c, and substitute the following: "c. At locations indicated to have paint removed, grind, sand or provide other procedures to remove existing paint coatings. At area that will be 'Dry Storage Room 143', removal of existing epoxy flooring, grinding of entire concrete floor surface, the hardening agent and the floor sealer are specified under spec section 03 36 00 - Special Concrete Floor Finishes."

Item No. 2-14: 09 21 16 – Gypsum Board Assemblies

A. At section 2.02 'Metal Framing Materials', at item B, add the following: "6. See 'Partition Schedule' on sheet AP1-1 for metal stud gauge requirements."

B. At section 2.02 'Metal Framing Materials, at item B – 2 'Runners', add the following: "The bottom track at the temporary wall types '3' and '4C' shall be 362T125-33 (20 ga.) anchored with ¼" tapcon x 1.5 inch embed@ 10'-0" o.c."

Item No. 2-15: 11 13 00 – Loading Dock Equipment

A. At section 2.02 'Components', item A 'Dock Leveler', at item 4 'Deck Width', change the deck width from 96 to 72 inches.

B. At section 2.02 'Components', item A 'Dock Leveler', at item 10, delete the 1/2" thickness and add the following: "The deck thickness is to be as designed and as engineered by the manufacturer."

C. At section 2.01 'Manufacturers', add the following acceptable manufacturer: "6. Aaron-Bradley".

Item No. 2-16: 32 31 13 – Chain-Link Fences and Gates

A. At Part 2 Products, add the following: "2.09 GATE CONTROLLER – Provide the gate controller and all accessories needed for a complete operating gate controller system. The gate controller is specified on the drawings and see attachments to this addenda. Include entrapment protection and object detection to meet UL325 – 6th Edition. Also, include 3 remote control transmitters and 1 receiver for each gate."

B. At section 2.02 Gates, add the following: "B. Sliding Gates: See attached drawings for gate requirements. Also, meet requirements of ASTM F2200."

C. At Part 3 Execution, add the following: "Install the Gate Controllers per the manufacturer's current written recommendations. Coordinate with Civil and Electrical for related work. Install the remote control transmitters and receivers per the manufacturer's current written recommendations. Install the object detection and entrapment protection systems to meet UL325 – 6th Edition and the manufacturer's current written recommendations. Include Owner training for the gate, gate controller, key pads, remote controls and other associated items."

DRAWINGS:

Item No. 2-17: Sheet A0.0

A. At the 'Sheet Schedule', add sheet 'C1.8 – Site Fencing Plans' and add sheet 'C2.3 – Curb Inlet Detail'.

Item No. 2-18: Sheet AP1.1

A. At the 'General Notes', add the following note: "AH. The 2 existing roof-top units (noted to remain) can be used to condition the building during the work, provided the Contractor follows LPS's standard protocol for protecting and maintaining mechanical units – including preventative maintenance, filter changes, etc. . Filters shall be MERV 8 or better. Unit coils are subject to full cleaning if deemed necessary. Contractor to take pictures of the unit before utilizing and document the units existing condition."

B. At the 'Partition Schedule' at the temporary wall types 3 and 4C, add the following note: "The bottom track at these temporary walls shall be 362T125-33 (20 ga.) anchored with ¼" tapcon x 1.5 inch embed@ 10'-0" o.c. – existing slab is to be exposed in phase 3 – protect slab from damage."

Item No. 2-19: Sheet C1.1

A. At the 'Demolition Plan', see the attached partial demolition plan from sheet C1.1 for changes to the removal of paving south of the existing building and abandoning the existing fire service.

Item No. 2-20: Sheet C1.2

A. At the 'Layout Plan', see the attached partial layout plan from sheet C1.2 for the addition of a curb and gutter at the existing paving south of the existing building and changes to the size of sidewalk replacement.

Item No. 2-21: Sheet C1.4

A. At the 'Utility Plan', see the attached partial utility plan from sheet C1.4 for the addition of drain tile at the retaining walls south of the building addition.
    1. See related item No. 1-33 – D from addenda No. 1. Include 4" dia. drain tile, filter fabric socks, granular fill and filter fabric sheets the full length of each retaining wall. Note that the drain tile is to run the full length of each of the 2 retaining walls and is to tie into the storm drain line at the base of the retaining walls.
    2. See related item No. 1-16 from addenda No. 1 for the foundation drainage specification.

Item No. 2-21: Sheet C1.4

A. At the 'Utility Plan', see the attached partial utility plan from sheet C1.4 for the addition of a 2" water line from Hill Street to the building.

Item No. 2-22: Sheet C2.2

A. Delete Detail 2 on C2.2 and substitute the attached detail 2, sheet C2.2 for updated information on the gate, the gate controllers, key-pads, the transmitters, receivers, etc.

Item No. 2-23: Sheet D1.1

A. At the Phase 1 Demolition Keynotes, delete keynote No. 40, and substitute the following: "40. Field Turf has been removed by Owner – remove existing epoxy floor, grind entire concrete floor slab, install floor hardener and install floor sealer at the entire area that will be 'Dry Storage Room 143'. This work is to be completed in Phase 1 – See the Phase 3 Demolition Plan for the approximate area of the epoxy flooring. Also see spec section 03 36 00 – Special Concrete Floor Finishes."
B. At the Phase 3 Demolition Keynotes, delete keynote No. 12 and substitute the following: "12. The epoxy floor is to be removed and the entire Dry Storage Room 143 area is to be ground and sealed in phase 1. See Item 2-26 of this addenda for phase 3 slab work at this area."
C. At Phase 3 Demolition Keynotes, at keynote No. 3, add the following: "Unscrew wall sill plate screws prior to sill plate demo to minimize damage to existing concrete slab."
D. At the Phase 1 Demolition Keynotes, at note No. 71, add the following: "Remove existing carpet and adhesive at the area that will be Dry Storage Room 143 in the following quantities: At an area approx. 5' wide x 60' long at the south wall and an area approx. 12' wide x 130' long at the west wall."
E. At the 'Phase 1 Demo Plan', at the south building area, add the following demo note No. 84 as follows: "84. Remove vinyl base at existing walls in area that will be Kitchen 101B, Storage 101B-2, Fire Pump 190, Electrical 190E and Generator 190M. The vinyl base is to remain at the areas that will be Mulit-Purpose 101, Classroom 102 and Main Office 100."
F. At the 'Phase 1 Enlarged Core Demo Plan', note that the string of dimensions at the top of the plan are at the wrong scale. See the attached partial plan ADD 2-2 with the correct dimensions.
G. At Phase 1 Demolition Keynotes, at Note 41A, add the following: "At the Dry Storage Room 143, increase the number of volleyball standards to be removed from 12 to 18.

Item No. 2-24: Sheet A1.1

A. At sheet keynote 23, add the following: "Increase the number of volleyball standards to be patched from 12 to 18 (this referring to the area north of the match line)."
B. At the 'Phases 1 & 2 Floor Plan – North', see the attached partial plan ADD 2-3 showing the revised location of door 184A and the revised location of the opening into Art 16 – Room 111.
C. At the 'Phases 1 & 2 Floor Plan – North', at Room ALE 184A, add the following note: "At the type 3 walls in ALE Room 184A, delete the gyp board and substitute 5/8" fire retardant plywood from floor to ceiling on the room 184A side of each wall.
D. See addenda notes at sheet D1.1 for work at the floor slab in the Dry Storage Room 143 area.

Item No. 2-25: Sheet A1.2

A. At Sheet Keynote 37, delete the reference to removing and patching the metal deck and slab from Addenda 1 - and instead, add a note to keep the hole through the deck as small as possible and grind the existing concrete floor slab to achieve the required slope to drain. Install floor sealer after grinding.
B. At Sheet Keynote 43, add the following: "Patch the gyp board at the rough areas of the half-high gyp board wall. This wall is between Stair ST01 and Mech 281M."

Item No. 2-26: **Sheet A1.3**

A. Add the following Sheet Keynote No. 20 at the Dry Storage Room 143: "20. After carpet and wall removal, clean carpet adhesive and patch the existing concrete floor slab at demo locations including sill plate screw holes and re-apply the floor sealer specified in section 03 36 00 at all patched and cleaned areas."

Item No. 2-27: **Sheet A2.1**

A. At the 'Door & Frame Schedule', at Door 184A, change the door type from 'E' to 'J'.
B. At the 'Door Type Elevations', add door type 'J'. Door type 'J' is to be a flush slab wood door with a 10" x 10" vision panel. Center the vision panel in the door horizontally and center it at 5'-2" vertically. Include 1/4" clear tempered glass in vision panel.

Item No. 2-28: **Sheet A2.2**

A. At the 'Room Finish Schedule – Phase 3':
    a. At Room '103A - Staff Lounge', change the ceiling material finish from 'ACS-3' to 'ACS-1'.
    b. At 'Drivers Vestibule', change the room number from 143 to 104.
    c. At 'Dry Storage', add the room number 143 and change the floor sealer from 'Sealed Conc. 1' to 'Sealed Conc. 3'.
B. At the 'Room Finish Key', add the following: "Sealed Conc. 3 – see Spec Section 03 36 00 - Special Concrete Floor Finishes."
C. At the 'Room Finish Schedule – Phases 1 & 2', at Room 281P – Mech Room, change the ceiling material form 'Exp. Str.' to '1-hour rated gyp board ceiling', change the ceiling finish from '—' to 'Paint', and change the ceiling height from 'Varies' to 9'-0". Note that this work is by Alt. M-2.
D. At the 'Room Finish Schedule – Phases 1 & 2', at Room 184A – ALE, make the following changes:
    1. Change the floor material from 'Carpet 1' to 'Rubber'.
    2. Change the wall material from 'gyp board' to 'FRT plywood' and note that it will be painted.
    3. Change the ceiling material from 'Exp. Str.' to 'Gyp Bd' and note that it will be painted.
    4. Change the ceiling height from 'varies' to 8'-0".
E. At the 'Typical Jamb Detail at Door in Existing Wall', change the detail number from '5' to '13'.
F. At the 'Typical Head Detail at Door in Existing Wall', change the detail number from '7' to '14'.
C. At the aluminum window, door and louver details, 1, 2, 3, 5, 6, 7, 13 and 14, change the aluminum break-metal to .063" thick clear anodized aluminum.

Item No. 2-29: **Sheet A3.1**

A. At ALE Room 184A, add a gyp board ceiling at 8'-0" AFF. Note that the ceiling is to be 1 layer 5/8" gyp board on 6" - 20 ga metal studs at 16" on center.

Item No. 2-30: **Sheet A6.2**

A. See the attached detail ADD 2-1 with detail 7 on sheet A6.2 and add the following note: "Add 8" tall FRP panel infill to cover void between each existing joist – typical at the north, east and west walls of Dry Storage Room 143 per the attached detail."

Item No. 2-31: **Sheet A6.7**

A. At detail A1 'Plan Detail at Door 143-3', add the following note: "The head detail is to be similar to the jamb construction."

Item No. 2-32: **Sheet S1.2**

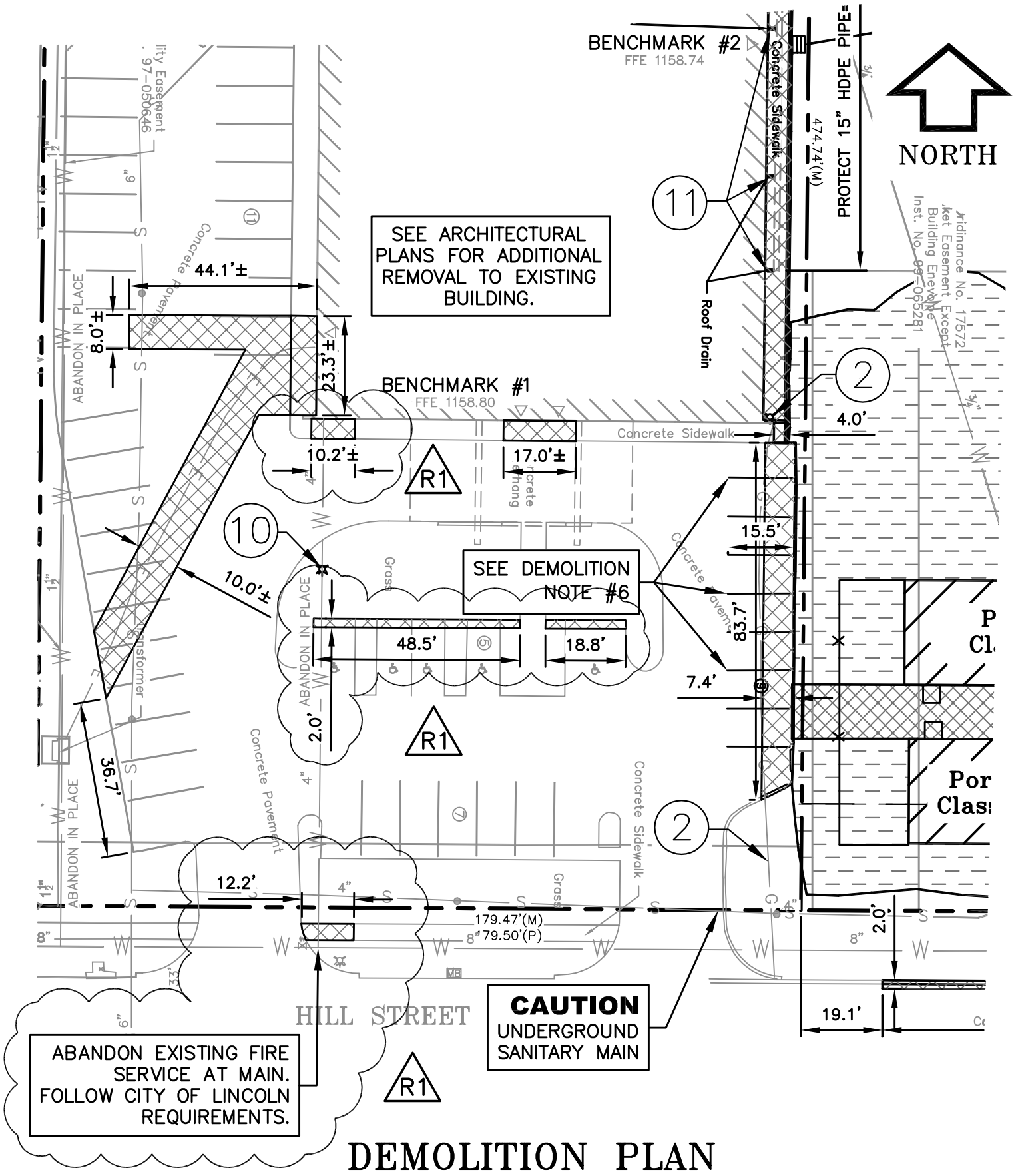
A. Add the attached detail AD2-1 'Unframed Opening in Steel Deck Detail' for the reinforcement of small openings in steel decks.

Item No. 2-33: **Sheet S2.1**

A. At the Footing/Foundation Plan, at the 2 bollards north of Freezer-to-Cooler Door 141-3, add a footing type FP 2-0/5-0 to support the 2 bollards. Also, add detail indicator E4 – Sheet S3.2 at both sets of bollards at door 141-3 showing the bollard mounting.

See Attached Mechanical and Electrical Addenda items

END OF ADDENDUM NO. 2



DEMOLITION PLAN

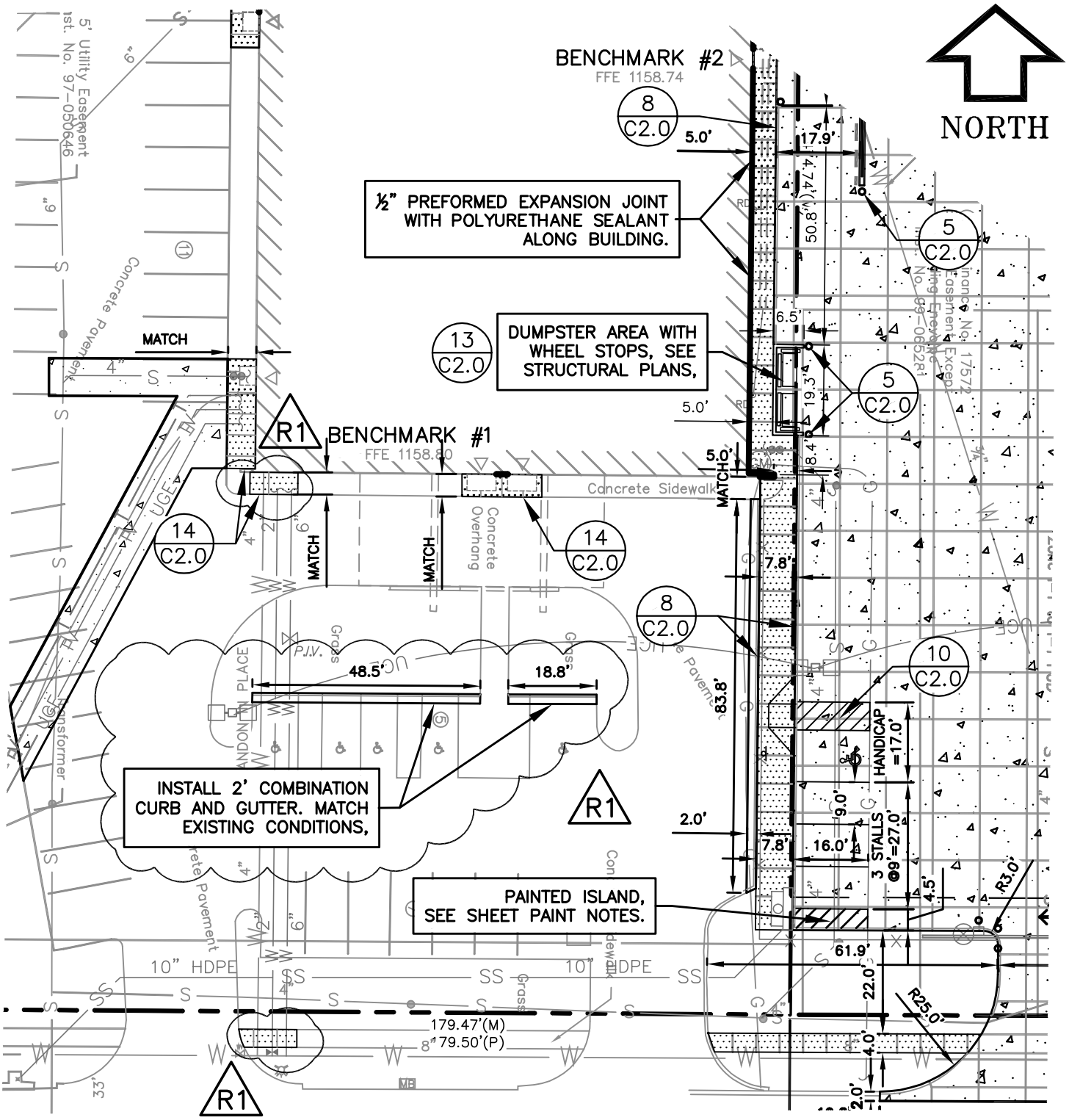
SCALE:1"=30'

REGA NO. 141267

ISSUED FOR:	DATE:	BY:
REMOVAL OF PAVEMENT, ABANDONED 4" WATER LINE	01/13/16	NB

REF. SHT# C1.1

REGA ENGINEERING GROUP, INC.



LAYOUT PLAN

SCALE:1"=30'

REGA NO. 141267

ISSUED FOR:	DATE:	BY:
ADDED COMBINATION CURB & GUTTER	01/13/16	NB

REF. SHT#__C1.2_____

REGA ENGINEERING GROUP, INC.

NORTH

HEAVY DUTY TRENCH DRAIN C.E.= 1154.80 I.E.= 1153.80 (OUT)

SLEEVE 10"HDPE STORM THRU WALL

CONNECT 10" (HDPE) STORM TO EXISTING 15"HDPE STORM SEWER

CONNECT 6" HDPE PIPE TO EXISTING 15" HDPE PIPE.

BENCHMARK #2
FFE 1158.74

ALL UTILITIES TERMINATE 5'-0" OUTSIDE BUILDING FOR CONTINUATION INSIDE BUILDING, SEE MECHANICAL PLANS.

4"(PVC)= 1154.80

CONNECT 6" HDPE PIPE TO EXISTING 15" HDPE PIPE.

REDUCE 4" WATER LINE TO 2" INSIDE BUILDING

BENCHMAR
FFE 1158.

4"(PVC)=1154.55

NEW GAS METER

6" BORE =23.0'

POWER BOLLARD, SEE ELECTRICAL PLANS

15"(HDPE)=1153.90

f.f.e.=1158.70
18,000 sq.ft.

HEAVY DUTY TRENCH DRAIN C.E.= 1154.80 I.E.= 1153.30 (OUT)

CONNECT SUB-DRAIN FOR RETAINING WALL TO STORM LINE. SEE STRUCTURAL PLANS FOR FURTHER INFORMATION.

SLEEVE EXISTING WATER SERVICE LINE THRU FOOTING

4"(PVC)=1154.34

BUILD CURB INLET TYPE "A-2" SEE LINCOLN STANDARD PLAN 101 FOR FURTHER INFORMATION. RIM EL: 1155.65 FL: 1153.16

FL15"HDPE)=1153.16

CONNECT SUB-DRAIN FOR RETAINING WALL TO STORM LINE. SEE STRUCTURAL PLANS FOR FURTHER INFORMATION.

SLEEVE 15"HDPE STORM THRU WALL

8TH STREET

Concrete Sidewalk

Concrete Overhang

Found 5/8" Rebar

Tree Mass

UTILITY PLAN

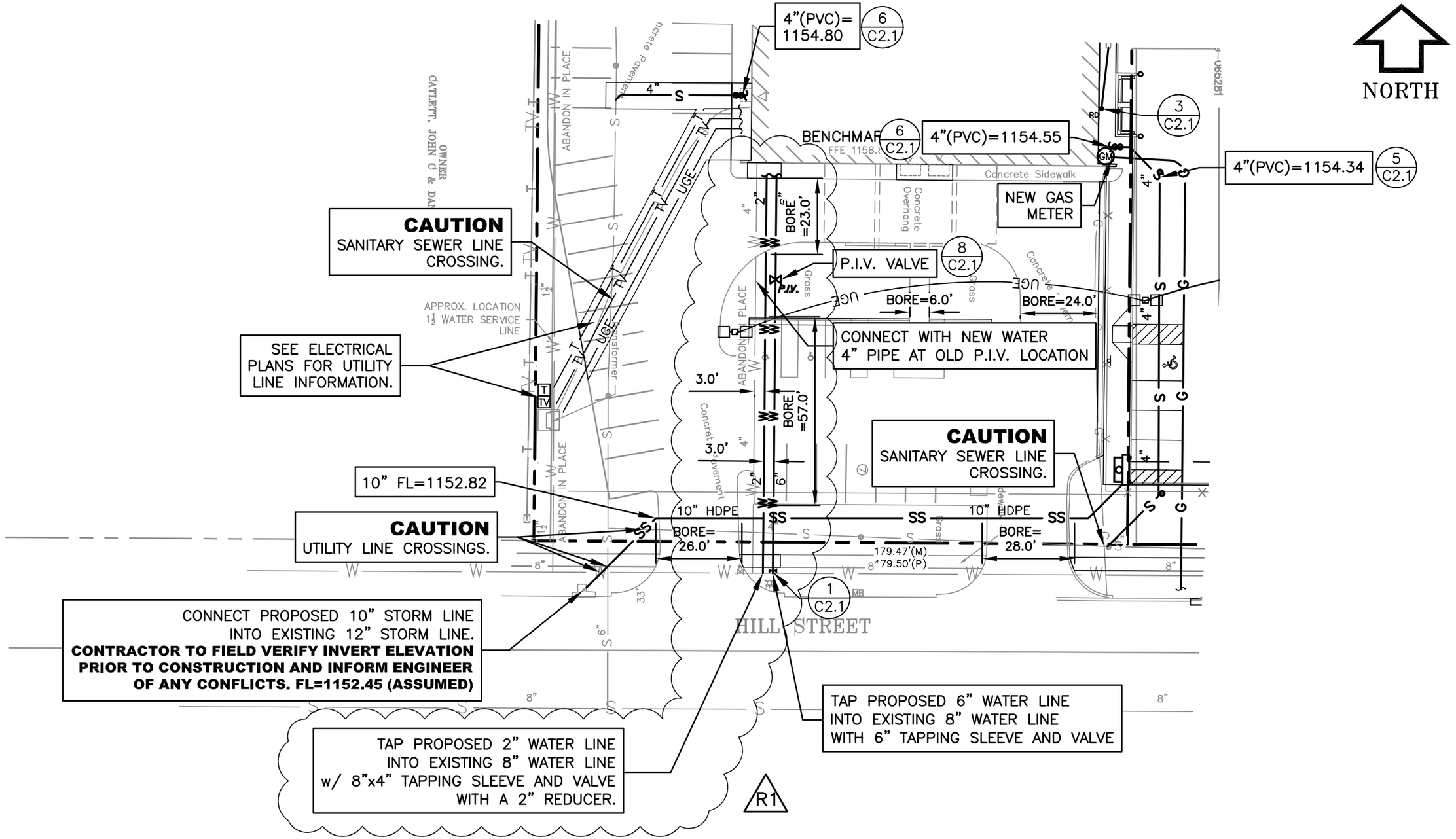
SCALE:1"=30'

REGA NO. 141267

ISSUED FOR:	DATE:	BY:
SUB-DRAIN FOR RETAINING WALL	01/13/16	NB

REF. SHT#__C1.4_____

REGA ENGINEERING GROUP, INC.



UTILITY PLAN

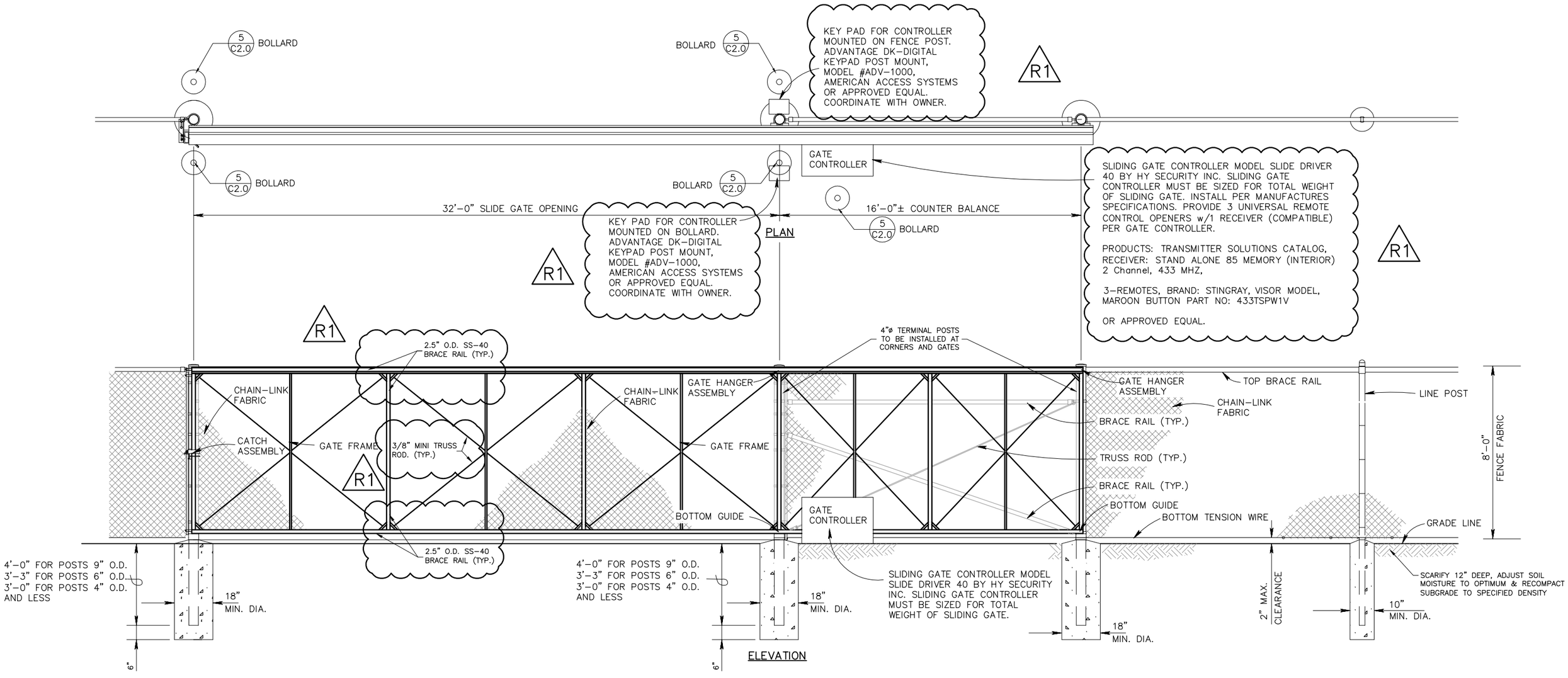
SCALE:1"=30'

REGA NO. 141267

ISSUED FOR:	DATE:	BY:
ADDED 2" DOMESTIC WATER LINE	01/13/16	NB

REF. SHT#__C1.4_____

REGA ENGINEERING GROUP, INC.



2 / C2.2 CANTILEVER SLIDE GATE

NO SCALE

REGA NO. 141267

ISSUED FOR:	DATE:	BY:
REVISED NOTES ON CANTILEVER DETAIL	01/13/16	SDB

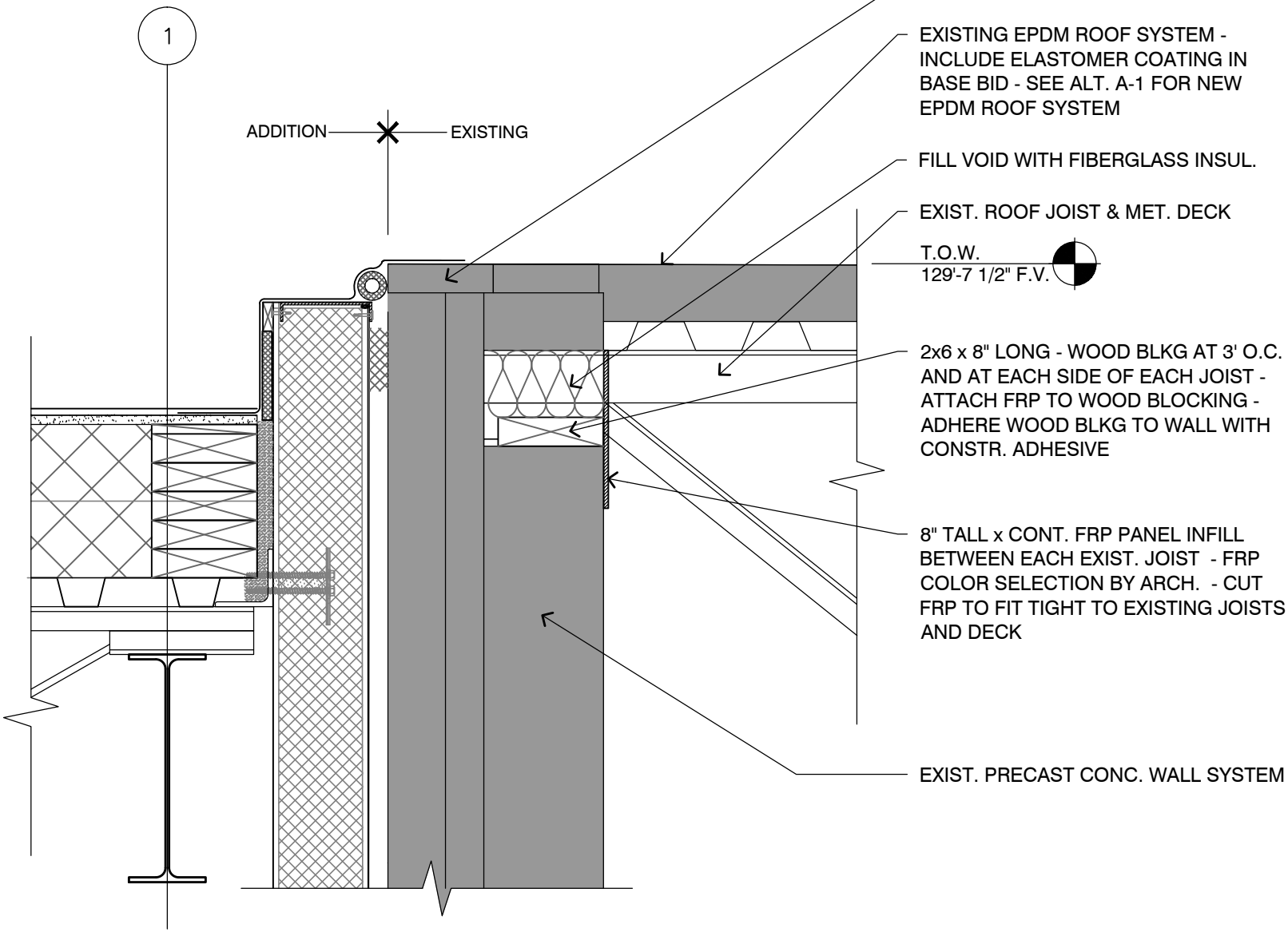
REF. SHT# C2.2

REGA ENGINEERING GROUP, INC.

FILENAME: P:\LPS\LPS - FOOD SERVICE STORAGE\CDS

Architectural Design Associates
Suite 105
7501 'O' Street
Lincoln Nebraska 68510
www.adalincoln.com
tel 402 486 3232

LPS Nutrition Services
Food Stores Warehouse
710 Hill Street



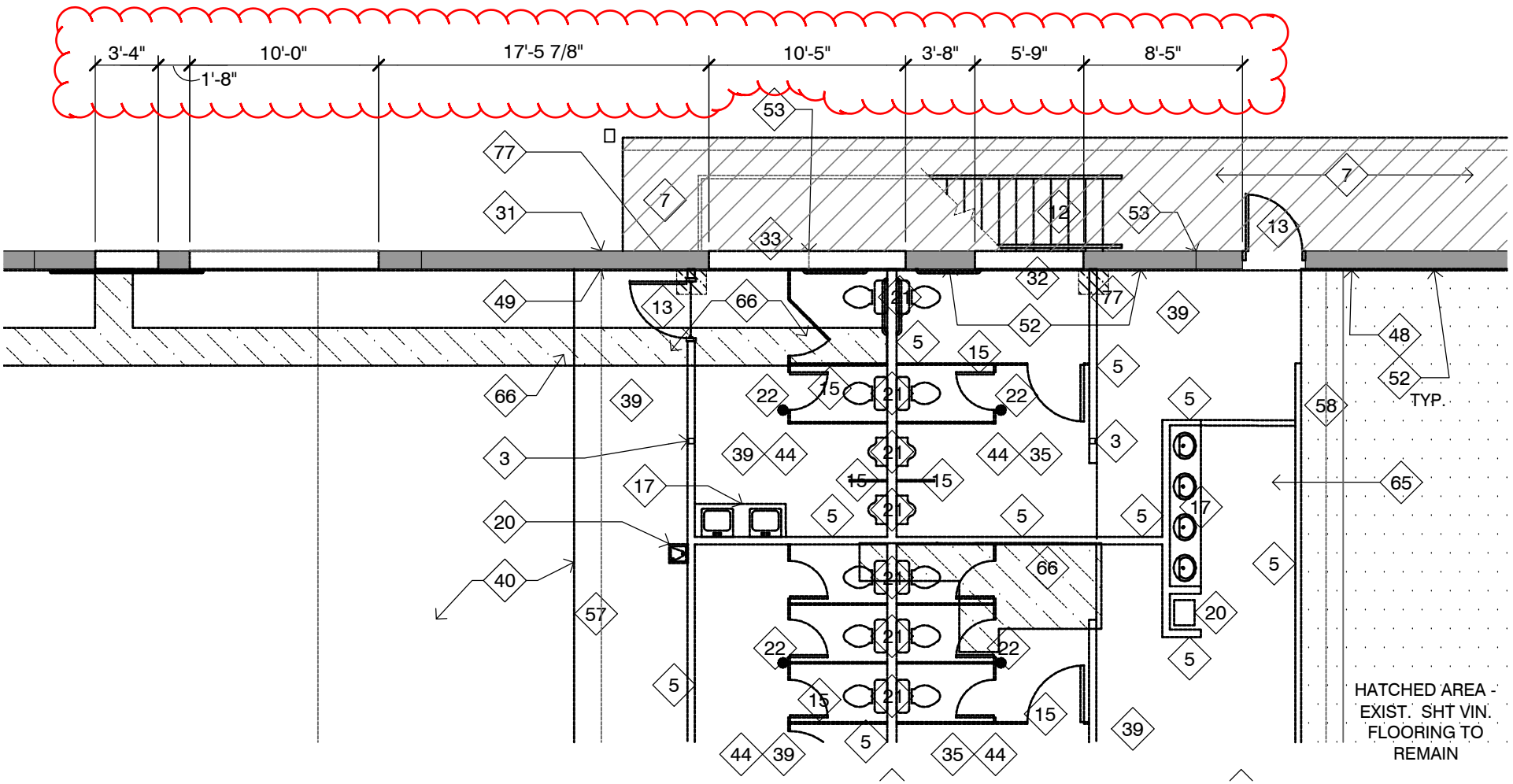
NOTE: THIS DETAIL IS TYPICAL AT THE NORTH, WEST AND EAST WALLS OF DRY STORAGE ROOM 143 - FRP CAN BE INSTALLED IN PHASE 1 OR 3.

7 FRP INFILL DET. AT EXIST. WALL

1 1/2" = 1'-0"

Project number
15-076
Date
12-21-2015
Revisions
1-14-2105

ADD
2-1



PHASE 1 ENLARGED CORE DEMO PARTIAL PLAN

SCALE: 1/8" = 1'-0"

ADA

LPS Nutrition Services
Food Stores Warehouse
710 Hill Street

Architectural Design Associates
Suite 105
7501 'O' Street
Lincoln Nebraska 68510

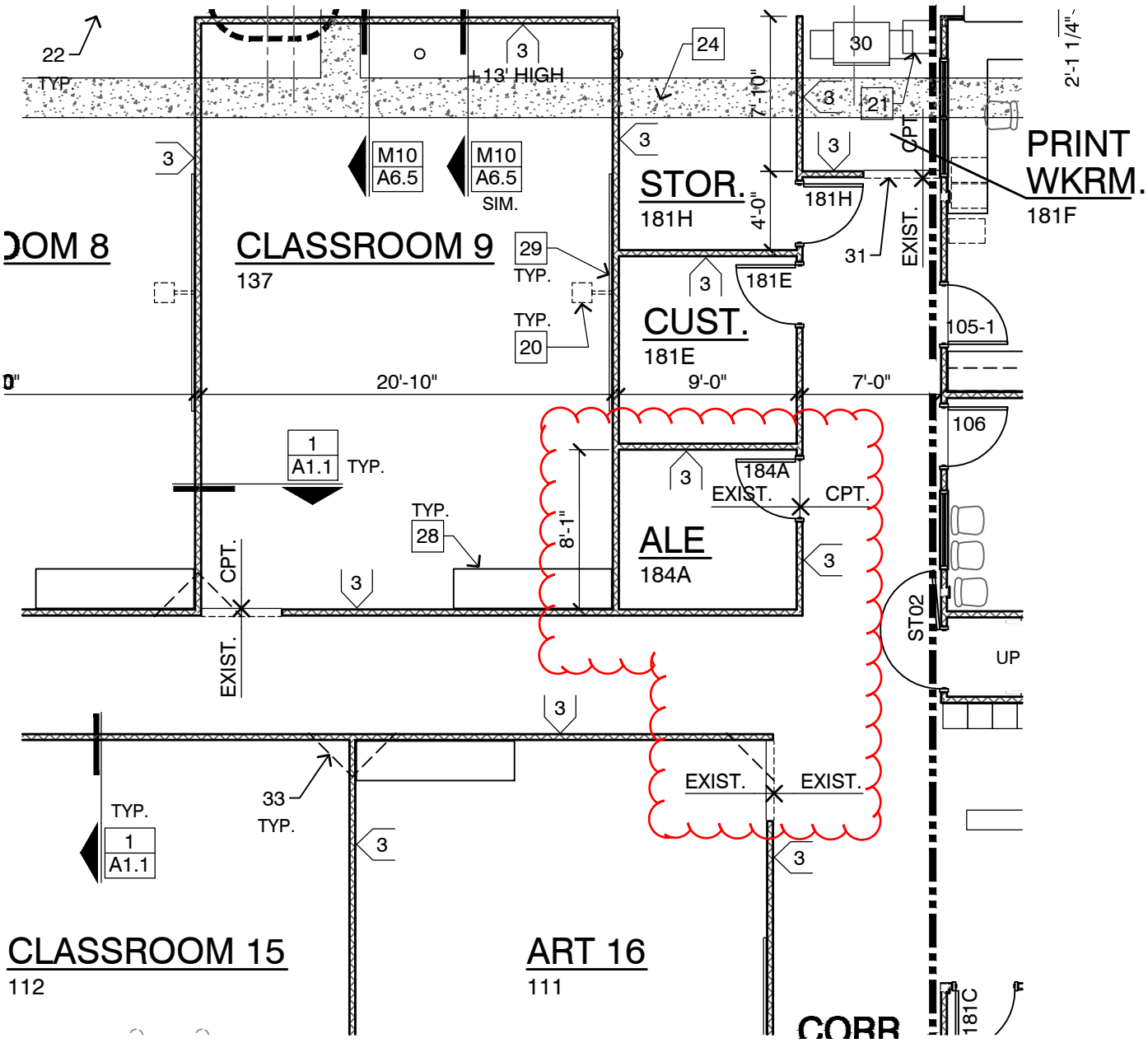
www.adalincoln.com
tel 402 486 3232

Project number
15-076

Date
12-21-2015

Revisions
1-14-2105

ADD
2-2



PHASE 1 & 2 FLOOR PLAN - NORTH - PARTIAL PLAN

SCALE: 1/8" = 1'-0"

FILENAME P:\LPS\LPS - FOOD SERVICE STORAGE\CDS

LPS Nutrition Services
Food Stores Warehouse
710 Hill Street

Architectural Design Associates
Suite 105
7501 'O' Street
Lincoln Nebraska 68510

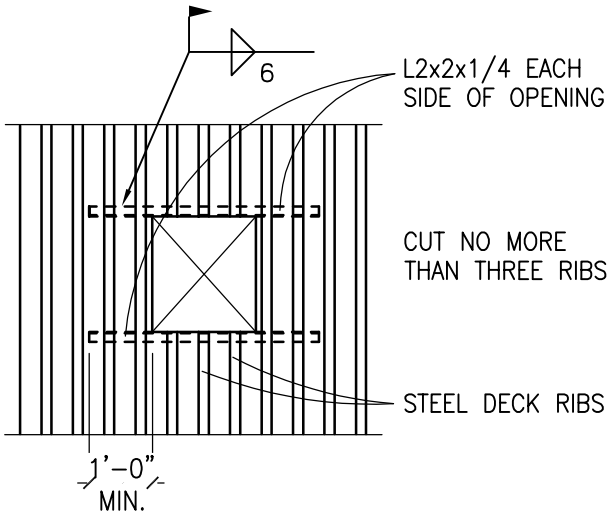
www.adalincoln.com
tel 402 486 3232

Project number
15-076

Date
12-21-2015

Revisions
1-14-2105

ADD
2-3



1 UNFRAMED OPENING IN STEEL DECK DETAIL
SCALE: 3/4" = 1' - 0"

structural[design]group, inc.
410 S 7th
lincoln, nebraska 68508
402-438-7788
402-438-7790

LPS FOOD DISTRIBUTION
ADDENDUM #2

UNFRAMED OPENING DETAIL

DATE:
14-Jan-16
PROJECT:
sdg 15-116

AD2-1

SCALE: 3/4" = 1'-0"

ADDENDUM

Date:	01/14/2016	**Project:**	LPS Food Store
To:	David Stirtz Architectural Design Associates 7501 'O' Street, Lincoln, NE 68510 Phone: 402-486-3232 Fax: 402-486-3380	**Project No.:**	15-080
		Addendum No.:	2
		CC:	

CHANGES TO PROJECT MANUAL

1. **Specification Section 26 29 13, 2.01, A - "GE" (General Electric) is an approved manufacturer for enclosed controllers."**
2. **See the two attached specification sections added to the project. Sections 28 05 00 – Common Work Results for Electronic Security and Section 28 13 00 – Electronic Access Control System. Please include all work required in project.**

CHANGES TO PROJECT DRAWINGS

1. **Sheet M1.1**
   a. Drywall ceiling to be provided in Rm Support/Br out 7 184A (ALE Room 184A on architectural sheets). Provide a new 8" supply branch duct down to a 12x12 SD-3 supply grille, balance to 150 CFM. Branch duct and grille to be removed during phase 3 and the main duct patched. Provide new 12x12 RG-3 return with 4' of lined 12"x12" duct and 2 elbows. Return duct and grille to be removed under phase 3.

2. **Sheet M1.2**
   a. Detail indicators that refer to sheet M1.5 are actually referring to sheet M1.3. There is no sheet M1.5 in the sheet set. See detail D3/M1.3 for damper details at the restroom wall and exterior west wall.
   b. Detail indicator D2/M1.5 (furnace detail) shall refer to detail D2/M1.3 on sheet M1.3.
   c. Added EF-2, 8" exhaust duct, 12x12 XA-1, (2) rg-2's, thermostat, and (2) two Fire dampers to boiler room on mezzanine level. See attached drawing. Note that work at Mech Rm 281P is added by Alternate No. M-2.
   d. Provide a cooling only thermostat for data room 180D

3. **Sheet M1.3**
   a. All detail call outs D1, D2, and D3 that are marked M1.5 shall read as M1.3.

4. **Sheet M2.0**
   a. At the "Exhaust Fans" schedule, add EF-2 to the schedule. See attached drawing.
   b. Revise the "Supply Diffuser and Grilles schedule". See the attached revised schedule.
   c. At the "Refrigeration Systems Air Cooled Condensers" schedule. Revise the model numbers to the following:
      CU-8 JLD5400L6D
      CU-9 JLD5400L6D
      CU-10 JLD5400L6D
      CU-11 BLV1501H6D

5. **Sheet P1.1**
   a. Note 11 shall read “Extend vent pipe from floor sink tight up existing concrete wall to 4” VTR. Install vent piping in corner of room next to temporary wall and existing wall in Classroom 133 (not in temporary wall).”

6. **Sheet P1.2**
   a. Note 11 shall read “3/4” domestic water piping to portable classes to be removed at the end of phase 1 when portables are removed.”

7. **Sheet P1.3**
   a. Drywall ceiling to be provided in Rm Support/Br out 7 184A (ALE Room 184A on architectural sheets). Extend fire sprinkler piping down to ceiling as required, provide concealed fire sprinkler head(s). under phase 3 the fire sprinkler piping and head(s) are to be removed.

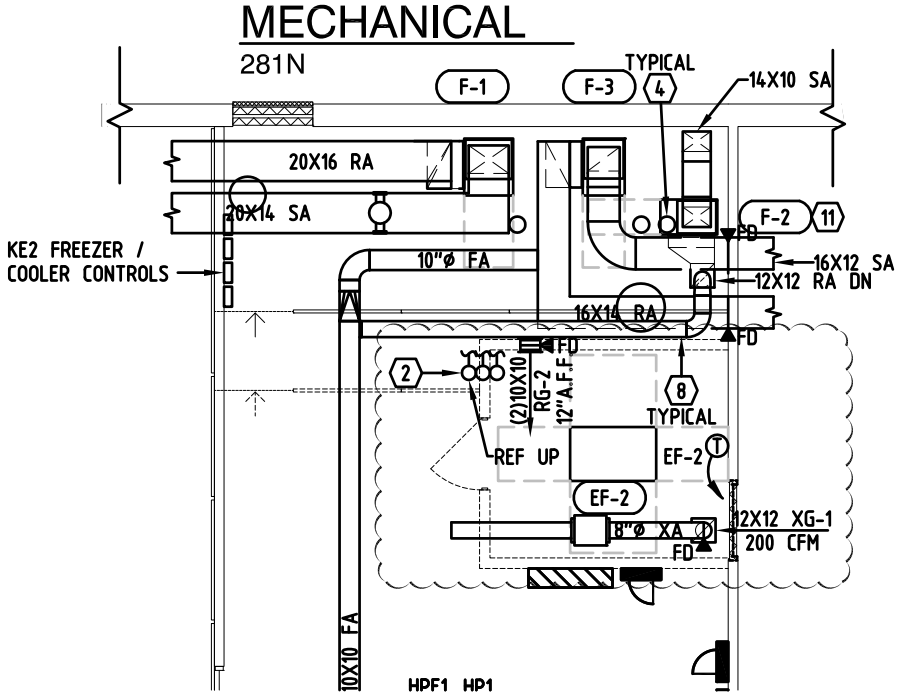
8. **Sheet E0.1**
   a. Electrical Contractor shall provide and install one (1) 3/4” conduit, with pull strings, underground from each sliding gate controller to the East wall of Flex/Receiving Office 105. Coordinate exact location of stub up with Owner and Gate supplier prior to rough-in.

9. **Sheet E1.1**
   a. Drywall ceiling to be provided in Rm Support/Br out 7 184A (ALE Room 184A on architectural sheets). Provide a new 277 volt surface mount vandal resistant fluorescent fixture with clear prismatic lens and white in color, Luminair VPF 124 232 ELECT 120 CP WHT. Provide new toggle switch located outside of room adjacent to door. Route 2-#12 conductors plus 1-#12 ground in 3/4” conduit to circuit ‘HP1-42. Light fixture and switch to be installed during Phase 1 and demolished during Phase 3.

10. **Sheet E2.1**
    a. Delete all receptacles and data outlets from room Support/Br out 7 184A (ALE Room 184A on architectural sheets).

11. **Sheet E2.2**
    a. Route 2-#12 conductors plus 1-#12 ground in 3/4” conduit to spare 20/1 breaker in panel ‘LP2’ for new Exhaust Fan EF-2. New EF-2 is located in Boiler room on Mezzanine level. Verify location and all requirements with Mech. Contr. This work is added by Alternate No. M-2.

12. **Sheet E4.2**
    a. Telecommunications Riser Diagram – Patch Panels shall be 48-port Cat 6 in lieu of 24-port Cat 6 as specified on plan.



MEZZ.
HVAC PLAN - PHASE 1

SCALE: 1/8" = 1'-0"

4630 Antelope Creek Rd Ste 200
P: 402-488-0075 / F: 402-488-0272

www.a-e-sys.com

620 N. 129th Street, Omaha, NE 68154
P: 402-504-3885 / F: 402-504-4598

ADVANCED ENGINEERING SYSTEMS

PROJECT: LPS FOOD STORES

PROJECT #: 15080

DATE: 1-14-16

DESCRIPTION: ADDENDUM #2

SHEET:

M1.2

NUMBER: 1 of 1

EXHAUST FANS

MARK	MANUFACTURER	MODEL #	CFM	E.S.P. WG	FAN TYPE	FAN MOTOR DATA							FAN LOCATION	AREAS SERVED	CONTROLS	NOTES
						HP	VOLT	PHASE	RPM	SONES	DRIVE	MOTOR TYPE				
EF-2	GREENHECK	SQ-85-D	200	0.5	CENTRIFUGAL	FRAC	115	1	1550	7.2	DIRECT	PSC	MEZZININE	BOILER ROOM	COOLING ONLY STAT	1,2

EXHAUST FAN SCHEDULE NOTES

1. PROVIDE BACKDRAFT DAMPER FOR FANS UNDER 500 CFM AND A MOTORIZED DAMPER WITH END SWITCH (END SWITCH TO BE PROVEN OPEN BEFORE FAN WILL COME ON) FOR FANS OVER 500 CFM. ALL FANS TO BE PROVIDED WITH BIRDSCREEN.
2. PROVIDE 1 HP AND LARGER FANS WITH A DISCONNECT SWITCH, MOTORS 3/4 HP AND SMALLER SHALL BE PROVIDED WITH A THERMAL ELEMENT SWITCH.

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ADVANCED ENGINEERING SYSTEMS

SUPPLY DIFFUSERS & GRILLES

MARK	FIXTURE	MANUFACTURER	MODEL #	DAMPER	FINISH	MOUNTING TYPE	DESCRIPTION AND OPTIONS
SD-1	SUPPLY DIFFUSER	TITUS	TMS	-	WHITE	LAY-IN	24 GAUGE STEEL, 24" X 24" PANEL, PROVIDE NECK SIZE AS SHOWN ON DRAWINGS
SD-2	SUPPLY DIFFUSER	TITUS	TMS-AA	-	WHITE	LAY-IN	ALUMINUM, 24" X 24" PANEL, PROVIDE NECK SIZE AS SHOWN ON DRAWINGS
SD-3	SUPPLY DIFFUSER	TITUS	TMRA	-	WHITE	SURFACE MOUNT	18 GAUGE STEEL, TYPE 2, MODEL B, ADJUSTABLE CONES. PROVIDE NECK SIZE AS SHOWN ON DRAWINGS.
SR-1	SUPPLY REGISTER	TITUS	300RS	-	WHITE	SURFACE MOUNT	24 GAUGE STEEL, 3/4" BLADE SPACING, INDIVIDUALLY ADJUSTABLE BLADES, DOUBLE DEFLECTION, PROVIDE SIZE AS SHOWN ON DRAWINGS
XG-1	EXHAUST GRILLE	TITUS	350RL	OPPOSED BLADE	WHITE	SURFACE MOUNT	24 GAUGE STEEL, 35° BLADE DEFLECTION, 3/4" BLADE SPACING PROVIDE SIZE AS SHOWN ON DRAWINGS
RG-1	RETURN GRILLE	TITUS	PAR	-	WHITE	LAY-IN	24 GAUGE STEEL, 24" X 24" OR 12" X 24" PANEL, PROVIDE NECK SIZE AS SHOWN ON DRAWINGS
RG-2	RETURN GRILLE	TITUS	33RL	-	BY ARCHITECT	SURFACE MOUNT	16 GAUGE STEEL BORDER, 14 GAUGE STEEL BARS SUPPORTED 6" ON CENTER, 3/8" BLADE SPACING, 38° BLADE DEFLECTION, BARS PARALLEL TO LONG DIMENSION, PROVIDE SIZE AS SHOWN ON DRAWINGS.
RG-3	RETURN GRILLE	TITUS	PAR-AA	-	WHITE	LAY-IN	ALUMINUM, 24" X 24" OR 12" X 24" PANEL, PROVIDE NECK SIZE AS SHOWN ON DRAWINGS
RG-4	RETURN GRILLE	TITUS	350RL	-	WHITE	SURFACE MOUNT	24 GAUGE STEEL, 35° BLADE DEFLECTION, 3/4" BLADE SPACING, BLADES PARALLEL TO LONG DIMENSION, PROVIDE SIZE AS SHOWN ON DRAWINGS
LV-1	LOUVER	GREENHECK	ESJ-401	-	CLEAR ANODIZED ALUMINUM	SURFACE MOUNT	EXTRUDED ALUMINUM, HORIZONTAL BLADES AT 45°, BIRD SCREEN, RAIN RESISTANT, PROVIDE SIZE AND SHAPE AS SHOWN ON DRAWINGS. COORDINATE SHAPE OF LOUVER WITH ARCHITECTURAL DRAWINGS. CLEAR ANODIZED ALUMINUM FINISH.
GH-1	GRAVITY HOOD	GREENHECK	GRS18	-	SPUN ALUMINUM	CURB MOUNT	SPUN ALUMINUM, INSECT SCREEN, PREFABRICATED ROOF CURB, PROVIDE SIZE AS SHOWN ON DRAWINGS.

DIFFUSERS, GRILLES, REGISTERS AND LOUVERS SCHEDULE NOTES

- COORDINATE FINISH COLOR WITH ARCHITECT, LOCATION AND MOUNTING TYPE FOR ALL REGISTER, GRILLES AND DIFFUSERS WITH GENERAL CONTRACTOR PRIOR TO ORDERING.
- COORDINATE SHAPE OF LOUVER WITH ARCHITECTURAL DRAWINGS.
- PROVIDE SIZE AND SHAPE AS SHOWN ON THE DRAWING.

By: Steve Jensen, Kyle Wilkinson **Date: 1/14/16**

M2.0

SECTION 03 36 00

SPECIAL CONCRETE FLOOR FINISHES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Hardener/Sealing Agent.

B. Grinding and polishing concrete.

C. Finish sealer.

1.02 RELATED REQUIREMENTS

A. Section 03 30 00 - Cast-In-Place Concrete.

1.03 REFERENCE STANDARDS

A. American Society for Testing and Materials:
   1. ASTM-C779, Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces
   2. ASTM G23-81, Ultraviolet Light & Water Spray
   3. ASTM C805, Impact Strength

B. American Concrete Institute
   1. ACI 302. 1R-89, Guide for Concrete Floor and Slab Construction

C. Other Test:
   1. Reflectivity

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Comply with pertinent provisions of Section 01 60 00 - Product Requirements.
   1. Provide submittal information within 35 calendar days after the contractor has received the owner's notice to proceed.

C. Product data:
   1. Submit special concrete finishes manufacturer's specifications and test data.
   2. Submit special concrete finishes describing product to be provided, giving manufacturer’s name and product name for the specified material proposed to be provided under this section.
   3. Submit special concrete finishes manufacturer's recommended installation procedures; which when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.
   4. Submit special concrete finishes technical data sheet giving descriptive data, curing time, and application requirements.
   5. Submit special concrete finishes manufacturer’s Material Safety Data Sheet (MSDS) and other safety requirements.
   6. Follow all special concrete finishes published manufacturer’s installation instructions.

1.05 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Use an experienced installer and adequate number of skilled workmen who are thoroughly trained and experienced in the necessary craft.
   2. The installer of special concrete finish shall be certified by the special concrete floor finish manufacturer.
   3. Applicator shall be familiar with the specified requirements and the methods needed for proper performance of work of this section.

B. Manufacturer’s Certification:
   1. Provide letter of certification from concrete finish manufacturer stating that installer is certified applicator of special concrete finishes, and is familiar with proper procedures and installation requirements required by the manufacturer.

C. Mock-ups:
   1. Apply mock-ups of each type finish, to demonstrate typical joints, surface finish, color variation (if any), and standard of workmanship.
      a. Mock-up shall be 50 square feet and shall be installed on the existing floor slab at a location determined by the Owner and Architect.
      b. Notify Architect or Owner Representative seven days in advance of dates and times when mock-ups will be constructed.
      c. Obtain from the Architect or Owner Representative approval of mock-ups before starting construction.
      d. If the Architect or Owner Representative determines that mock-ups do not meet requirements, create an alternate mock-up at a location determined by the Architect and Owner until mock-up is approved.
      e. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed work.
      f. Approved mock-ups may become part of the completed work if undisturbed at time of substantial completion.

D. Protection
   1. Prevent petroleum stains on the concrete substrate.
      a. All hydraulic powered equipment must be diapered to avoid staining of the concrete.
      b. No trade will park vehicles on the inside slab. If necessary to complete their scope of work, drop cloths will be placed under vehicles at all times.
      c. No pipe cutting machine will be used on the inside floor slab.
      d. Steel will not be placed on interior slab to avoid rust staining.
      e. Acids and acidic detergents will not come into contact with slab.
      f. All trades are to be informed that the slab must be protected at all times.
      g. Apply RetroPel, provided by Advanced Floor Products for additional protection.

E. Pre-Installation Conference:
   1. Conduct conference at project site to comply with requirements in Division 1 Section " Project Management and Coordination"

1.06 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in original containers, with seal's unbroken, bearing manufacturer labels indicating brand name and directions for storage.

B. Dispense special concrete finish material from factory numbered and sealed containers. Maintain record of container numbers.

1.07 PROJECT CONDITIONS

A. Environmental limitations:
   1. Comply with manufacturers written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting topping performance.
      a. Concrete Floor Flatness rating recommended at 40.
      b. Concrete Floor Levelness rating recommended at 35.
      c. Concrete must be cured a minimum of 45 days or as directed by the manufacturer before application of Retro Plate can begin.
      d. Application of Retro-Plate shall take place 10 days prior to installation of equipment and substantial completion, thus providing a complete, uninhibited concrete slab for application.

B. Close areas to traffic during floor application and for 2 hours after application.

PART 2 – PRODUCTS

2.01 MATERIALS AND MANUFACTURERS

A. HARDENING/SEALING AGENT
   1. Retro-Plate 99, manufactured by Advanced Floor Products, Inc., P.O. Box 50533, Provo, Utah 84605, 801-812-3420.

a. Performance Criteria:
1) Abrasion Resistance: ASTM C779 – Up to 400% increase in abrasion resistance.
2) Impact Strength: ASTM C805 – Up to 21% increase impact strength.
3) Ultra Violet Light and Water Spray: ASTM G23-81 – No adverse effect to ultra violet and water spray.
4) Reflectivity: Up to 30% increase in reflectivity.

2. Pre-certified Applicators
3. Manufacturer's Regional Representative:
a. SGA Coating Consultants -
b. 14927 Industrial Rd, Omaha, NE 68144
c. (402)333-1511

B. SEALER
1. RetroGaurd, provided by Advanced Floor Products, Inc., P.O. Box 50533, Provo, Utah 84605, 801-812-3420

2.02 RELATED MATERIALS

A. Neutralizing Agent:
1. Tri-sodium Phosphate

B. Water:
1. Potable

PART 3- EXECUTION

3.01 SURFACE CONDITIONS:

A. Examine substrate, with installer present, for conditions affecting performance of finish. Correct conditions detrimental to timely and proper work. Do not proceed until unsatisfactory conditions are corrected.

B. Verify that base slab meet finish and surface profile requirements in Division 3 Section "Cast-In-Place Concrete," and Project Conditions above.

C. Prior to application, verify that floor surfaces are free of construction latents.

3.02 APPLICATION

A. Start the floor finish applications in presence of manufacturer's technical representative.

B. Grind to remove all existing coatings.

C. Repair any damaged areas with Tnemec series 222

D. Fill all joints with Cretefill 85

E. Sealing, Hardening and Polishing of Concrete Surface:
1. Concrete must be in place a minimum of 45 days or as directed by the manufacturer before application can begin.
2. Application is to take place at least 10 days prior to racking and other in-store accessory installation, thus providing a complete, uninhibited concrete slab for application
3. Apply Hardening/Sealing Agent: Only a certified applicator shall apply Retro-Plate 99. Applicable procedures must be followed as recommended by the product manufacturer and as required to match approved test sample.
4. Achieve waterproofing, hardening, dust-proofing, and abrasion resistance of the surface without changing the natural appearance of the concrete, except for the sheen.
5. Polish to sheen level 2 (800 Grit Finish).
6. Apply RetroGaurd Sealer.

3.03 WORKMANSHIP AND CLEANING:

A. The premises shall be kept clean and free of debris at all times.

B. Remove spatter from adjoining surfaces, as necessary.

C. Repair damages to surface caused by cleaning operations.

D. Remove debris from jobsite
    1. Dispose of materials in separate, closed containers in accordance with local regulations.

3.04 PROTECTION:

A. Protect finished work until fully cured in accordance with manufacturer's recommendations.

END OF SECTION

SECTION 28 05 00

COMMON WORK RESULTS FOR ELECTRONIC SECURITY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section includes basic design requirement specifications for electronic security systems (ESS). This section contains requirements that pertain to other Division 28 security specifications such as requirements for warranty, submittals, quality assurance, record drawings, installation, demonstrations and operator training. The term Security System Integrator (SSI) shall apply to the installation contractor for the division 28 security specification sections.

1.02 DEFINITIONS

A. Install: Supply labor to construct complete system, ready for intended use.

B. Furnish: Supply and deliver to the site, ready for use, items required to complete tasks or perform tests required to build a complete ready-to-use system.

C. Provide: Furnish, install, connect and test, supplying required labor to construct a complete system, ready for the intended use.

D. Contractors Field Test (CFT): Test performed by the contractor to verify device functionality in the field.

E. Performance Verification Test (PVT): Test performed by the contractor in the presence of the Owners Representative verifying a fully operational system.

1.03 WARRANTIES

A. The Contractor shall warrant all materials, workmanship, and equipment against defects for a period of one year after the date of substantial completion. Certain equipment shall be warranted beginning at the time of final acceptance or for longer periods of time as specified in those sections of the Project Manual. The Contractor shall repair or replace, at no additional cost to the Owner, any item which may become defective within the warranty period. Any manufacturers' warranties concerning any item installed will run to the benefit of the Owner. The Contractor agrees not to void or impair, or to allow Sub-Contractors to void or impair, any warranties regarding products or items installed as part of this project. The repair of faulty workmanship shall be considered to be included in the contract.

B. Warranty Maintenance and Service Agreement:

1. General Requirements: The contractor shall provide all services required and equipment necessary to maintain the entire ESS in an operational state as specified for a period of one year after formal written acceptance of the system, and shall provide all necessary material required for performing scheduled service or other unscheduled work.
2. Personnel: Service personnel shall be factory certified in the maintenance and repair of the equipment installed under this section of the specification. The owner shall be advised in writing of the name of the designated service representative, and of any change in personnel.
3. Description of Work: The service and repair of the ESS including all equipment provided under this specification supplied by the successful contractor. The contractor shall provide the manufacturer's required scheduled and unscheduled maintenance and all other work necessary to keep the ESS at its maximum performance.

4. Schedule of Work: This work shall be performed during regular working hours, Monday through Friday, excluding federal holidays.

    a. Inspections: The Contractor shall perform two minor inspections at 6 month intervals (or more often if required by the manufacturer), and two major inspections offset equally between the minor inspections to effect quarterly inspection of alternating magnitude.
    b. Minor Inspections: These inspections shall include:

        1) Visual checks and operational tests of all console equipment, peripheral equipment, field hardware, sensors, and electrical and mechanical controls.
        2) Mechanical adjustments if required on any mechanical or electromechanical devices.

    c. Major Inspections: These inspections shall include all work described under paragraph Minor Inspections and the following work:

        1) Clean all ESS equipment, including interior and exterior surfaces.
        2) Perform diagnostics on all equipment.
        3) Check, walk test, and if required by the manufacturers' maintenance procedures, calibrate each sensor.
        4) Run all system software diagnostics and correct all diagnosed problems.

5. Operation: Performance of scheduled adjustments and repair shall verify operation of the ESS as demonstrated by the applicable tests of the performance verification test.
6. Emergency Service: The owner will initiate service calls when the ESS is not functioning properly. Qualified personnel shall be available to provide service to the complete ESS. The owner shall be furnished with a telephone number where the service supervisor can be reached at all times. Service personnel shall be at site within 24 hours after receiving a request for service. The ESS shall be restored to proper operating condition within 24 hours after service personnel arrive on site.
7. Records and Logs: The Contractor shall keep records and logs of each task, and shall organize cumulative records for each component and for the complete system chronologically. A continuous log shall be maintained for all devices. The log shall contain all initial settings. Complete logs shall be kept and shall be available for inspection on site, demonstrating that planned and systematic adjustments and repairs have been accomplished for the ESS.
8. Work Requests: The Contractor shall separately record each service call request on a service request form. The form shall include the model and serial number identifying the component involved, its location, date and time the call was received, specific nature of trouble, names of service personnel assigned to the task, instructions describing what has to be done, the amount and nature of the materials used, the time and date work started, and the time and date of completion. The Contractor shall deliver a record of the work performed within 5 days after work is accomplished.
9. System Modifications: The Contractor shall make any recommendations for system modification in writing to the Owner. No system modifications, shall be made without prior approval of the Owner. Any modifications made to the system shall be incorporated into the operations and maintenance manuals, and other documentation affected.
10. Software: The Contractor shall provide all software updates during the period of the warranty and verify operation in the system. These updates shall be

accomplished in a timely manner, fully coordinated with ESS operators, shall include training for the new changes / features enabled, and shall be incorporated into the O&M manuals.

1.04 SYMBOLS

A. Items of equipment and materials are indicated on the drawings in accordance with the Security Symbols Legend on the drawings. Some of the symbols scheduled may not be required for the project. Because of the scale of the Drawings, symbols are shown on Drawings as close as possible to the mounting location. Verify exact locations with the Architect and Owner's Representative.

1.05 ABBREVIATIONS

A. CCTV: Closed Circuit Television

B. DAC: Digital Alarm Communicator

C. DPS: Door Position Switch

D. VMS: Video Management System

E. DVR: Digital Video Recorder

F. EAC: Electronic Access Control

G. EMI: Electromagnetic interference

H. EVS: Electronic Video Surveillance

I. FACP: Fire alarm Control Panel

J. IDS: Intrusion Detection System

K. LAN: Local Area Network

L. LCD: Liquid Crystal Display

M. LBM: Latch Bolt Monitor

N. NEC: National Electrical Code, latest edition

O. NEMA: National Electrical Manufacturers Association

P. NFPA: National Fire Protection Association

Q. NVE: Network Video Encoder

R. NVR: Network Video Recorder

S. PSTN: Public Switched Telephone Network

T. PTZ: Pan-Tilt-Zoom

U. PVC: Polyvinyl chloride

V. RQE: Request to Exit.

W. SMS: Security Management System

X. SSI: Security System Integrator

Y. STP: Shielded twisted pair

Z. SPD: Surge Protection Device

AA. UL: Underwriters Laboratories, Inc

BB. UPS: Uninterruptible Power Supply

CC. UTP: Unshielded twisted pair

DD. WAN: Wide Area Network

EE. WTH: Wire Transfer Hinge

1.06 CODES AND STANDARDS

A. The work shall be performed by competent craftsmen skilled in the trade involved and shall be done in a manner consistent with normal industry standards. All work shall conform to all applicable sections of currently adopted editions of the codes and standards listed below or the codes, standards, and specifications published by the organizations listed below:

1. Safety and Health Regulations for Construction.
2. Occupational Safety and Health Standards (OSHA), National Consensus Standards and Established Federal Standards.
3. National Electrical Code (NEC), latest edition.
4. American National Standards Institute (ANSI).
5. National Electrical Manufacturer's Association (NEMA).
6. Institute of Electrical and Electronics Engineers (IEEE).
7. National Fire Protection Association (NFPA).
8. American Society for Testing Materials (ASTM).
9. Life Safety Code (NFPA 101).
10. Underwriters' Laboratories, Inc., Standards (UL).
11. Independent Testing Laboratories (ITL).
12. International Organization for Standardization (ISO)
13. Electrical Testing Laboratories (ETL).
14. Microsoft® Open Database Connectivity (ODBC) interface
15. National Electrical Safety Code (NESC).
16. Factory Mutual Engineering Corporation or other recognized national laboratories.
17. Uniform Building Code (UBC).
18. International Building Code (IBC)
19. Building Officials and Code Administrators International, Inc. (BOCA).
20. Building Industry Consulting Service International (BICSI).
21. Electronics Industry Association (EIA).
22. Telecommunications Industry Association (TIA).
23. State and Local Codes.

B. Where there is a conflict between the code or referenced standards and the contract documents, the code or standard shall have precedence only when it is more stringent than the contract documents. Items that are allowed by the code but are less stringent than those specified shall not be substituted.

C. Follow Owner's installation standards unless otherwise shown on the drawings or stated herein. Where requirements of Installation Standards conflict with Performance Standards or manufacturer's recommendations, refer to Owner for a decision before proceeding. Owner's standards are listed below.

1.07 QUALITY ASSURANCE

A. Installer Qualifications: An Experienced installer who is an authorized representative of equipment manufacturer with industry accepted experience relative to size and nature of project.

B. The work specified in these specifications and construction documents shall be accomplished by an experienced Contractor in the design, fabrication, installation, checkout and warranty contract management of systems such as those being described in each Section.

C. Installer shall employ only a qualified PM-Project Manager and must meet the following requirements: Required participation in meetings and conferences. Be present at Project site for Substantial Completion Inspection, Final inspection, approves the operating and maintenance manuals and to provide any additional instructions as needed to designated members of the Owner's staff.

D. Be responsible for supervision of all technical work that is part of this Specification.

E. Supervise preparation of shop drawings and submittals and sign all submittals.

F. Supervise the shop fabrications and field installation work to assure strict conformance in accordance to the Contract Drawings, Specifications and the reviewed Shop Drawings to assure workmanship of the specified quality.

G. Oversee the testing of all assemblies and all sub-assemblies prior to their delivery at the Project Site.

H. Lead in the specified testing of completed installation to assure the Owner that all Contract Requirements were met. Working with and assisting the Owner in the final testing for approval and acceptance of the system by Owner.

I. Substitutions when allowed must be submitted to and approved by the Engineer.

J. Comply with NFPA 70, National Electric Code

K. Comply with NFPA 101, Life Safety Code

L. Comply with NFPA 730, Guide for Premises Security

M. Comply with NFPA 731, Standard for the Installation of Electronic premises Security Systems,

N. Comply with American Disabilities Act (ADA)

O. Comply with International Building Code (IBC)

P. Comply with IEEE C62.41.1-2002, Guide on the Surge Environment in Low-Voltage AC Power Circuits

Q. Comply with ANSI/EIA-310-D-92, Racks, Panels, and Associated Equipment

R. Comply with ANSI/TIA/EIA-526-14A-Method B Optical Power Loss Measured of Installed Multimode Fiber Cable plant.

S. Comply with ANSI/TIA/EIA-568-B Commercial Building Telecommunications Cabling

T. Comply with ANSI/TIA/EIA-607 Commercial Building Grounding and Bonding Requirements for Telecommunications.

U. Comply with ANSI/TIA/EIA-758 Customer-Owned Outside Plant Telecommunications Standard.

V. Comply with BICSI Electronic Safety and Security Design Reference Manual, current edition.

W. Comply with BICSI Telecommunications Distribution Methods Manual, current edition.

X. Comply with BICSI Customer-Owned Outside Plant Design Manual, current edition.

Y. Follow Owner's installation standards unless otherwise shown on the drawings or stated herein. Where requirements of Installation Standards conflict with Performance Standards or manufacturer's recommendations, refer to Owner for a decision before proceeding.

1.08 SUBMITTALS

A. Bid Submittals:

1. A resume of qualification shall be submitted with the Contractor's proposal indicating the following:

   a. A list of five recently completed projects of similar type and size with contact names and telephone numbers for each.
   b. A technical resume of experience for the Contractor's project manager and on-site installation supervisor who will be assigned to this project.

B. Shop Drawings, Product Data and Samples: See Section 01300 "Shop Drawings, Samples, and Product Data." Section 01300 shall be adhered to if more stringent than the following paragraphs:

1. Unless otherwise noted, submit one copy electronically of shop drawings and product data for review. Review comments will be returned electronically. A hard copy of the electronic submittal will be returned if requested.
2. Product Data: Include technical data necessary to evaluate the material and equipment. Include a complete technical specification for the submitted equipment, noting differences and adherence's to this section. Submit for approval prior to material order.
3. Shop Drawings: Provide complete shop drawings which include the following:

   a. Indicate all system device locations on architectural floor plans. No other system(s) shall be included on these plans.
   b. Include full schematic wiring information and load schedule for all devices.
   c. Wiring information shall include cable type, conductor routings, quantities, and connection details at device
   d. Include a complete one-line, block diagram.
   e. Include a statement of the system sequence of operation..

C. Programming Submittals shall include

1. Device names and descriptions,
2. Complete written sequence of operations for all functions of the system.

   a. Include what happens to doors hardware when there is a power or communications failure.

D. Performance Verification Test Report (PVT): A proposed test plan shall be submitted to the Owner's Representative for approval prior to commencement of final test.

E. Construction record drawings:

1. Maintain current documents at the construction site. Submit with Operations and Maintenance Manuals.
2. Record drawings shall include all information required for shop drawings and in addition shall indicate the following:

   a. Routing of cables from equipment cabinets to security devices.
   b. Routing of cables between equipment cabinets.
   c. Routing of cables between service entrance room and equipment cabinets.
   d. Revisions to construction documents (addenda and field changes.)
   e. Floor plans with all final device and equipment cabinet locations and labeling.

F. Operation and Maintenance Manuals:

1. The Contractor shall prepare three operating and maintenance manuals for the equipment furnished. Manuals shall be submitted to the Architect/Engineer for review and distribution to the Owner not less than 30 days prior to substantial completion of the project. Manuals not meeting the following requirements may be rejected by the Architect/Engineer.
2. Each manual shall be assembled in a three-ring binder with hard cover and plastic finish. Binders shall not exceed 3" thickness. Where more than one binder is required, the manuals shall be separated into a logical grouping, i.e., "Functional Design Manual", "Hardware Manual", "Software Manual", "Operators Manual", "Maintenance Manual". Each binder shall have the following information clearly printed on its front cover:

    a. Project name and address.
    b. Portion of the work covered by each volume (if more than one volume in the set). Where more than one volume is required, label each volume as "Volume ___ of ___".
    c. Name, address and telephone number of Contractor and all Sub-Contractors including night or emergency number.

3. Manual shall include, but shall not be limited to, the following:

    a. A Complete Index. Contractor may submit the index to the Architect/Engineer for review prior to submittal of complete manuals if desired.

4. Hardware Manual: The manual shall include:

    a. Names, Addresses and Telephone Numbers. This list shall include the manufacturer and local representative who stocks or furnishes repair parts for all items of equipment and shall be typed on a single page in front of the binder.
    b. One copy of all shop drawings and product data, clearly marked for each item furnished using the designation label specified or indicated on drawings.
    c. Installation and check out procedures
    d. Alignment and calibration procedures

5. Software Manual: The software manual shall describe the functions of all software and shall include all other information necessary to enable proper loading, testing, and operation. The manual shall include:

    a. Definition of terms and functions
    b. System use and application software
    c. Initialization, start up, and shut down
    d. Reports generation
    e. Details on forms customization and field parameters

6. Operators Manual: The operators manual shall fully explain all procedures and instructions for the operation of the system including:

    a. Computers and peripherals
    b. System start up and shut down procedures
    c. Use of system, command, and applications software
    d. Recovery and restart procedures
    e. Graphic alarm presentation
    f. Use of report generator and generation of reports
    g. Data entry
    h. Operator commands
    i. Alarm messages and reprinting formats

j. System permissions functions and requirements

7. Maintenance Manual: The maintenance manual shall include:

a. Manufacturer's Operation and Maintenance Manuals and Parts Lists.
b. Emergency Procedures. Provide a written description of emergency operating procedures or a list of service organizations (including addresses and telephone numbers) capable of rendering emergency services to the various parts of the system.
c. All manufacturers' warranty information.
d. Normal Maintenance Schedule. Include a listing of work to be performed at various time intervals; i.e., 30, 90, 180 days and yearly.

1.09 COORDINATION

A. Coordinate and schedule all construction work with the General Contractor, Owner, and occupants prior to beginning work. Do not interrupt building activities without strict coordination with the General Contractor, Owner, and occupants. Unscheduled appearance to work in the spaces without scheduling is not allowed.

B. Coordinate layout and installation of any required LAN cabling with Owner's IT staff.

C. Meet jointly with IT equipment suppliers and Owner to exchange information and agree on details of equipment arrangements and installation interfaces.

D. Record agreements reached in meetings and distribute to other participants.

E. Adjust arrangements and locations of cross connect blocks and patch panels in equipment rooms and telecommunications rooms to accommodate and optimize arrangement and space requirements of IT equipment.

F. Coordinate security device rough-ins/conduit and door/door frame prep with general construction work and arrange in building structure during progress of construction to facilitate the security installations that follow.

G. Coordinate exact location(s) of ceiling mounted equipment/devices with architectural plans, reflected ceiling plans, structural plans and all affected trades prior to construction and installation.

H. Coordinate exact location(s) of all desk/counter top mounted security equipment with Millwork/Casework and furniture plans prior to installation.

I. Fully examine the drawings and specifications for other trades and coordinate the installation of security work with the work of the other trades. Consult and cooperate with the other trades for determining space requirements and for determining that adequate clearance is allowed with respect to his equipment, other equipment, and the building.

J. Coordinate installation and cabling with the raceway installer. Verify raceways are installed according to the plans and specifications before installing cable.

K. Provide offsets and elevation changes in piping, conduit and devices as required to complete the Layout and Coordination Process. Offsets and elevation change information shall be indicated in the coordination process documentation and must be submitted for review.

1.10 DELIVERY, STORAGE AND HANDLING

A. Security equipment shall neither be delivered nor installed until the building is totally enclosed, secured, weather tight and all dust or moisture generating construction work within the building is complete and cured. Care shall be taken to protect equipment from damage until the date of substantial completion of the project

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT MANUFACTURERS

A. The Contractor's options in selecting materials and equipment are limited by requirements of the contract documents and governing regulations. They are not controlled by industry traditions or procedures experienced by the Contractor on previous construction projects. Materials and equipment shall be provided in accordance with the following:

1. Primary Design Products: Primary design products are those products around which the project was designed in terms of capacity, performance, physical size and quality. Primary design products are indicated by use of a single manufacturer's name, model number or similar data on drawings or schedules or within the specifications. The Contractor shall provide primary design products unless substitutions are made in accordance with the following paragraphs.
2. Acceptable Equivalent Substitutions: Acceptable equivalent substitutions are products of manufacturers other than those listed for the primary design products. Equivalent acceptable substitutions shall meet each of the following requirements:
    a. The product shall be manufactured by one of the acceptable manufacturers listed in the Project Manual, drawings or addenda.
    b. The product shall meet or exceed the requirements of the contract documents in terms of quality, performance, suitability, appearance and physical characteristics.
    c. The Contractor providing the substitution shall bear the total cost of all changes due to substitutions. These costs may include additional compensation to the Architect/Engineer for redesign and evaluation services, increased cost of work by the Owner or other Contractors, and similar considerations.
    d. Performance Requirements. Where the contract documents list performance requirements or describe a product or assembly generically, provide products that comply with the specific requirements indicated and that are recommended by the manufacturer for the respective application.
3. Compliance with Standards, Code and Regulations: Where the specifications require only compliance with an imposed standard, code or regulation, the Contractor has the option of selecting a product that complies with specification requirements, including the standards, codes and regulations.
4. Proposed substitutions will be judged on the basis of quality, performance, appearance and on the governing space limitations. The reputation of the manufacturer, delivery time requirements, and the availability of repair or replacement parts may also be considered. All proposed substitution must be submitted to the Architect/Engineer for prior approval at least 10 days prior to the final Addendum.
5. The Architect/Engineer shall be the sole and final judge as to the suitability of substitution items.

2.02 MANUFACTURERS

A. Subject to compliance with requirements listed in the system specific Division 28 specifications, provide products by one of the following:

B. EAC Software and Field Hardware:

1. Avigilon

C. EAC Authentication Hardware:

1. HID

D. Secure and Access Devices:

1. GE Security
2. George Risk Industries (GRI), Inc
3. Bosch
4. Ademco Sensor Co.
5. DMP
6. Honeywell
7. System Sensor
8. Mercury

E. Copper Cable:

1. Belden
2. General Cable Corporation
3. Windy City Wire (smartwire)
4. Communications Supply Corporation

2.03 MATERIALS AND EQUIPMENT FURNISHED BY OTHERS

A. Where materials and equipment are indicated as furnished by others and installed or connected under this contract, it shall be the Contractor's responsibility to verify installation details.

B. General: Coordinate the features of materials and equipment so they form an integrated system. Match components and interconnections for optimum future performance.

2.04 QUANTITY OF SPECIFIED ITEMS REQUIRED

A. Wherever in these specifications an article, device, or piece of equipment is referred to in the singular number, such reference shall apply to as many such articles as are shown on the drawings or required to complete the installation.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine pathway elements intended for cables. Check raceways, cable trays, and other elements for compliance with space allocations, installation tolerances, hazards to cable installation, and other conditions affecting installation. Proceed with installation only after unsatisfactory conditions have been corrected.

B. For Ethernet devices that are close to EIA/TIA distance limits, run a length test on proposed routing to said device. Inform Owner and Engineer of any devices beyond EIA/TIA distance limits. Owner and Engineer shall not be responsible for cables that exceed EIA/TIA distance limits.

C. For digital serial communication devices that are close to distance limits of the serial protocol being used (RS-232, RS-422, RS-485, Weigand), run a length test on proposed routing to said device. Inform Owner and Engineer of any devices beyond Recommended Standard (RS) distance limits. Owner and Engineer shall not be responsible for cables that exceed Recommended Standard distance limits.

3.02 INSTALLATION

A. Wiring Method: Provide all copper cable and optical fiber in conduit, raceway and cable tray except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces and in gypsum board partitions where unenclosed wiring method may be used. Use UL-listed plenum cable in environmental air spaces, including plenum ceilings. Conceal all raceway and cables except in unfinished spaces.

B. Arrange for moving of furniture to access devices in the work area as needed.

C. Install cables using techniques, practices, and methods that are consistent with Category rating of components and that ensure Category performance of completed and linked signal paths, end to end.

D. Install cables without damaging conductors, shield, or jacket.

E. Provide SPD devices in the security cabinets for any security device located in outdoor locations.

F. Install copper ground bus bars with adequate number of compression lug terminations for all shielded cable drain wires, SPD ground wires, and power supply ground wires located within the security cabinet. Bond security cabinets with minimum #6 AWG ground wire to nearest Telecommunications Ground Bar (TGB) when cabinets are located within the telecom room. Bond ground bus bar to approved ground rod installed by the electrical contractor when security cabinets are located in outdoor locations.

G. All shielded cables entering security cabinets must have the jackets stripped back near the point of entry, the foil shield removed and all drain wires terminated to the cabinet ground bar. Use heat shrink to prevent shorts between drain wires and electronic equipment within the cabinet.

H. Ground to nearest electrical panel

I. Install security cables continuous from the device location to the security cabinet serving that area, or between security cabinets. Do not splice security cables, but if a splice is required, provide tamper-resistant “torx with peg” security fasteners for junction boxes containing security cable splices.

J. All security devices located outdoors shall be rated as weather proof including Mounting box or method.

K. Furnish tools and test equipment. Provide all specified materials, installation hardware, and labor required to complete work shown on drawings and specified in this Section. This shall include work and miscellaneous items not specified but necessary to build a complete system installation including test equipment accessories and appurtenances required for testing the system. All systems shall be complete and ready for operation.

L. Use cable bundling hardware rated for the environment and application in which used. Applications include, but are not limited to, general purpose, outdoor, chemical resistant, flame retardant, high temperature, and vibration. Provide reusable cable management straps for bundling and securing cables. Do not use nylon cable ties.

M. Do not bend cables, in handling or in installing, to smaller radii than minimums recommended by manufacturer. Do not exceed cable manufacturer's recommended pulling tensions.

N. Install exposed cables parallel and perpendicular to surfaces or exposed structural members and follow surface contours where possible.

O. Secure and support cables at intervals not exceeding 48 inches and not more than 6 inches from cabinets, boxes, fittings, outlets, racks, frames, and terminals.

P. Wiring Within Wiring Closets and Enclosures: Provide conductors of adequate length. Train conductors to terminal points with no excess.

Q. Bring to the attention of the Owner and Engineer conflicts between manufacturer’s instructions and Contract Documents.

R. Separation of Wires: Comply with TIA/EIA-569-A rules for separating unshielded copper voice and data communication cabling from potential EMI sources, including electrical power lines and equipment.

3.03 FIELD QUALITY CONTROL

A. Performance Verification Tests:

1. Notify Architect and Owner's representative in writing, in advance of testing to prevent delays in construction schedules.
2. Test all systems and place in proper and specified working order prior to demonstration of the systems.
3. Test system grounds to demonstrate that the ground resistance does not exceed the requirements of UL 1449 Surge Protection Device (SPD) and the National Electric Code (NEC).
4. Perform tests, as required, by authorities having jurisdiction over the site.
5. Testing shall be in the presence of the Owner's designated representatives, Contractor, Architect and representatives of the authorities having jurisdiction.

B. Verification of Performance:

1. Prior to acceptance of the work, the security system integrator/installer (SSI) shall demonstrate to the Owner, designated representatives, Contractor, Architect and representatives of the authorities having jurisdiction, all subsystems, features and functions of the system, and shall instruct the Owner in the proper operation and event sequences of the system. Check for correct connections and test for short circuits, ground faults, continuity, and insulation before energizing any cables and wires.

C. Where systems have been expanded and/or upgraded, the SSI shall provide the personnel and labor to completely test and demonstrate all new, existing, and upgraded software and hardware.

D. Demonstrate each system and subsystem. The demonstration is to consist of no less than the following:

1. Designate actual location of each component of a system or sub-system and demonstrate its function and its relationship to other components within the system.
2. Verify final field of view for all fixed cameras
3. Demonstrate the systems and subsystems operations by actual "START/STOP-ON/OFF-OPEN/CLOSE" cycling showing how to work controls, how to reset devices, how to replace fuses and emergency operating/operations procedures.
4. Trip all alarm and intrusion detection devices and verify response of alarm and trouble signals.
5. Check Installation, supervision, and operation of all intelligent, addressable initiating and control devices by physically testing each device in accordance with the manufactures requirements.
6. Each of the alarm conditions that the system is required to detect shall be introduced on the system. Verify the proper receipt and the proper processing of the signal at the Front-end processing unit and the correct activation of all control points and the sequence of operations.

E. Activate each installed access control/security device through the Front-end processing unit and verify proper system operation.

F. Tag all equipment, stations, and other components for which tests have been satisfactorily completed.

G. Systems to be demonstrated are to include, but not be limited to the following:

1. EAC

H. SSI shall furnish the necessary trained personnel to perform the demonstration and instructions and arrange to have the manufacturer's representatives present to assist with

the demonstrations. Training time shall include, as a minimum, the total time determined by the sum of the times specified in each section, for performing the prescribed demonstrations/training.

I. SSI shall arrange with the Owner's designated representative the date and times for perform the demonstrations. The Owner will select date and time for demonstration.

J. Comply with requirements of Division 01 – System Demonstrations.

3.04 INSPECTIONS

A. At the completion of the project and prior to final acceptance of the work, provide evidence of final inspections and approvals to the Owner, as required by the authorities having jurisdiction to requirements of Division 01.

3.05 TRAINING

A. The Contractor shall provide the Owner's Representative with training for operating the system as required by this specification. The Contractor shall provide actual field demonstrations of the operation of all system components and the entire system installed in the building.

B. The Contractor shall provide 8 hours of formal training for the Security System to the Owner's Representative, scheduled at their direction. The training shall consist of two, 4-hour training sessions and shall cover system operation, hardware configuration and basic maintenance skills.

C. The Contractor shall provide the Owner's Representative with training for operating the system as required. An additional 8 hours of technical training shall be given to the Security and Engineering staff. The technical training shall consist of two 4-hour training sessions.

D. Prepare a written record of tests, inspections, and detailed test results in the form of a test log.

3.06 ADJUSTMENTS

A. Within one year of date of Substantial Completion, provide up to three Project site visits, when requested by Owner, to adjust and calibrate components and to assist Owner's personnel in making program changes and in adjusting equipment and controls to suit actual conditions. Visits for this purpose shall be in addition to any required by warranty.

3.07 CLEANING

A. After completing system installation, including outlet fittings and devices, inspect exposed finish. Remove burrs, dirt, and construction debris and repair damaged finish, including chips, scratches, and abrasions.

END OF SECTION

SECTION 28 13 00

ELECTRONIC ACCESS CONTROL SYSTEM

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This section includes access control with proximity card readers, request-to-exit micro-switches (integrated in-door hardware provided by others) door position contacts, and all associated and miscellaneous controls. Manufacturer model numbers are provided to describe components. All model numbers shall be verified prior to equipment procurement.

B. This project is a continuation of multiple access control and monitoring systems to be installed at various facilities throughout the school district. Select access control and monitoring system components and configurations for maximum flexibility and compatibility with currently installed systems. The Electronic Access Control (EAC) server is existing and will serve as the key component for managing electronic access control for the components outlined in these specifications and construction drawings.

1.02 SYSTEM DESCRIPTION

A. System Requirements and Functional Performance: Minimum system features and performance shall include, unless otherwise indicated on the drawings:

1. Provide cable and terminations for electrified panic bars and mortise locksets at each secured door as indicated on plans. This door hardware is provided by others.
2. Provide a proximity-type card reader at each secured door as indicated on plans. Locate on the non-secure side of the door as indicated in door details.
3. Interface access controlled doors with automatic handicap door operators and push paddles.
4. Provide a panic “lock down” button at locations indicated on drawings. While depressed, tamper-resistant pushbutton:
    a. Overrides all exterior doors to locked state.
5. Provide a door position contact at each leaf of each secured door as indicated on drawings. Connect to access control system and generate a “propped” door alarm when a monitored door is left open for an extended and adjustable period of time and a forced door alarm when the door is opened without a card read or request-to-exit signal.
6. Interface with existing fire alarm control panel.
    a. A general fire alarm shall unlock controlled egress doors. This unlock signal shall have top priority over all other controls.
    b. All modifications to existing fire alarm system shall use components U.L. listed and labeled with existing fire alarm control panel, installation methods shall retain U.L. listing and labeling of fire alarm system.
7. Capacity to program and schedule each individual door, or user-selected group of doors, as “locked”, “unlocked”, or “access controlled”. Up to six (6) different schedules may be selected.
    a. A “locked” door shall remain locked for ingress regardless of activity at the card reader.
    b. An “unlocked” door shall remain unlocked for ingress regardless of activity at the card reader.

c. An “access controlled” door shall remain locked for ingress until an authorized card is used at the card reader. The use of an authorized card unlocks the associated door to allow entry. The door re-locks after entry.
d. All doors shall maintain free egress operation.

1.03 SUBMITTALS

A. Product Data: As specified in section 28 0500

B. Shop Drawings: As specified in section 28 0500

C. Access Control Programming Schedule: Provide programming information in spreadsheet format to include but not be limited to the following information by door: When door is scheduled to be secured, what groups or individuals have access and when, holiday schedules.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Refer to Division 28 Section “Common Work Results for Electronic Safety and Security” for alternate manufacturers where allowed.

2.02 MATERIALS

A. GENERAL

1. Coordinate the features of materials and equipment so they form an integrated system. Match components and interconnections for optimum future performance.

2. Refer to the "Security Drawings" for additional information including locations and quantities.

2.03 ELECTRONIC ACCESS CONTROL (EAC) SOFTWARE

A. Design Basis: Avigilon Access Control Manager (no approved equal)

B. Provide all additional client, server, and reader licenses/dongles required for the system as specified herein. Provide all 3rd party software licenses as required for the proper operation of the system.

C. Readers:

1. Licensing as required per the drawings.

D. EAC FIELD CONTROLLER HARDWARE

1. General: All decisions regarding access, alarms, and automatic timed functions shall be made at the controller level, independent of the host server.

2. Distributed IP based Door Interface Electronics: Provide POE door interface module in enclosures above accessible ceilings near doors as indicated on drawings. A POE enabled communications outlet will be provided by others at each door. Provide final connection with plenum rated manufactured category 6 patch cord.
3. Door Interface Module

a. Single or double door without ADA: Mercury EP1501 (no approved equal)
b. Single or double door with ADA: Mercury EP1502 (no approved equal)

E. DOOR LOCK POWER SUPPLY

1. Power Supply (furnished with door hardware): Provide door release wiring via an above-door power supply as indicated on drawings.

F. AUTHENTICATION HARDWARE

1. Credential Reader

a. Reader Type: HID MultiClass
b. Provide the following mounting Options:

1) Standard Wall Mount
2) 2" Mullion Mount

G. SECURE AND ACCESS DEVICES

1. Activation Devices

a. Door Release

1) Under Desk
2) Provide Rutherford Controls 909S/909F
3) Door release will be momentary contact closure

b. Door Lock Down

1) Under Desk
2) Provide Rutherford Controls 919
3) Door lock down, shall be latching contact
4) Door lock down button shall be mounted in low traffic, visible wall location that is easily accessible to staff

2. Door Devices and Hardware:

a. Refer to the Access Control Opening Schedule for additional information
b. Door Position Switch (DPS)

1) Design Basis: GE 1078

c. Electrified Mortise Lock

1) Furnished with door hardware. Security Contractor shall provide cabling and connection to access control panel.

d. Electrified Exit Device

1) Furnished with door hardware. Security Contractor shall provide cabling and connection to access control panel.

e. Wire Transfer Hinge

1) Furnished with door hardware. Security Contractor shall provide cabling and connection to access control panel.

f. Handicap Operators: Interface access controlled doors with automatic handicap door power operators and push paddles provided by others. Each push paddle associated with egress on an access controlled door shall provide a request-to-exit signal to the Avigilon door interface module in the same manner as the integral door hardware request-to-exit switch. Provide relays, timers, and all ancillary components required to interface with automatic handicap door power operator system.

H. COPPER CABLE

1. Access Control Composite Cable

a. Design Basis: Belden Banan Peel

b. Jacketed cable with multiple elements for lock power, card reader, dps, and request-to-exit.
c. Plenum

I. SECURITY EQUIPMENT ENCLOSURES:

1. Wall Mount Cabinet

a. Enclosures for access control components shall protect against dust, falling dirt, and non-corrosive liquids.

PART 3 - EXECUTION

3.01 SYSTEM COMMISSIONING

A. The successful bidder shall work with LPS for common door/device names, programming, configuration, system commissioning, and Owner training. Program all access control functions, including schedules, door operation, and miscellaneous I/Os.

3.02 EXAMINATION

A. The Security Contractor shall maintain the integrity of the existing system through renovation. The Contractor shall coordinate any outages or down-time with the Owner prior to starting any work.

B. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of intrusion detection and access control.

C. Examine roughing-in for embedded and built-in anchors to verify actual locations of intrusion detection connections before intrusion detection installation.

D. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of intrusion detection or access control.

E. Inspect built-in and cast-in anchor installations, before installing intrusion detection, to verify that anchor installations comply with requirements

F. Remove and replace anchors where inspections indicate that they do not comply with requirements. Re-inspect after repairs or replacements are made.

G. Perform additional inspections to determine compliance of replaced or additional anchor installations.

H. Proceed with installation only after unsatisfactory conditions have been corrected.

3.03 SYSTEM INSTALLATION

A. Systems shall be complete and operational in all respects.

B. Contractor shall program and provision the system per the drawings and specifications and owner requirements.

C. Contractor shall coordinate with the Div. 26 contractor regarding the installation of all conduit, raceways, cable trays, power, power to remote door power supplies, etc. for all building Security Systems.

D. All wiring shall be “Plenum” rated in concealed spaces and in conduit or approved raceway in exposed spaces unless shown otherwise on the Drawings.

E. Electrical contractor is to connect all power supplies for ADA doors and door control to emergency power.

F. Electrical contractor is to provide dedicated circuits for access control doors.

G. Electrical contractor is to update the emergency panel legend to identify the doors control by each circuit.

H. Electrical contractor is to install labeling affixed to the inside and outside the power supply enclosure

I. All security equipment, junction boxes, terminal cans, etc. shall be installed utilizing tamper proof mounting hardware. Provide a minimum of 2 driver bits or hand tools for each type of security fastener provided.

J. Provide seismic restraints for all equipment, including equipment racks, consoles, etc.

3.04 WIRING INSTALLATION

A. Wiring Method: Install wiring in raceways except in accessible indoor ceiling spaces and in interior hollow gypsum board partitions where cable may be used. Conceal raceways and wiring except in unfinished spaces and as indicated. Minimum conduit size shall be 3/4-inch. Security and data transmission wiring shall not share conduit with other building wiring systems.

B. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points. Use lacing bars and distribution spools. Separate power-limited and non-power-limited conductors as recommended in writing by manufacturer. Install conductors parallel with or at right angles to sides and back of enclosure. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with intrusion system to terminal blocks. Mark each terminal according to system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.

C. Conductors: Size as recommended in writing by system manufacturer, unless otherwise indicated.

D. 120-V Power Wiring: Comply with division 26 "Conductors and Cables,".

E. Connections: Comply with torque-tightening values specified in UL 486A.

F. Install power supplies and other auxiliary components for detection devices at control units, unless otherwise indicated or required by manufacturer. Do not install such items near devices they serve.

G. Use steel fitting for EMT and flex

3.05 GROUNDING

A. Comply with Division 26 Section "Grounding and Bonding."

B. Comply with Division 27 Section “Telecommunications Grounding and Bonding.”

END OF SECTION

SECTION 31 66 15
HELICAL FOUNDATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Helical anchors used to support tension loads.

B. Helical piles used to support compression loads.

1.02 RELATED REQUIREMENTS

A. Section 31 20 00 - Earthmoving

1.03 DEFINITIONS

A. Specific terms used in this section are defined below. Terms not defined below are defined in DFI TM-GLOS-1 first and then by common usage.

B. Extension Section: Helical foundation component installed between lead section and load transfer device.

C. Effective Torsional Resistance: Average installation torque typically taken over a distance equal to last three diameters of penetration of largest helix plate.

D. Geotechnical Capacity (or, Ultimate Soil Capacity): Maximum load resisted.

E. Lead Section: First helical foundation component installed in soil.

F. Limit State: Condition beyond which a helical foundation component is unfit for service.
   1. Serviceability Limit State: Foundation no longer useful for its intended function.
   2. Strength Limit State: Foundation is unsafe.

G. Loads: Forces or other actions that result from weight of all building materials, occupants and their possessions, environmental effects, differential movement, and restrained dimensional changes. Permanent loads are those loads in which variations over time are rare or of small magnitude. All other loads are variable loads (see also Nominal Load below).

H. Load Test: Procedure to test capacity and relation of load to movement.

I. Mechanical Strength: Maximum tension load resisted by structural elements of helical foundation.

J. Nominal Load: Magnitude of loads determined by Architect, including dead load, live load and other imposed by building code requirements

K. Reveal: Distance along longitudinal axis from ground surface to end of last installed extension of a foundation.

L. Safety Factor: Ratio of ultimate pullout resistance to nominal load.

M. Ultimate Pullout Resistance: Limit state based on lesser of mechanical strength or geotechnical capacity and defined as point at which helical foundation can resist no additional load.

1.04 REFERENCE STANDARDS

A. AISC 360 - Specification for Structural Steel Buildings; 2010.

B. ASTM A29/A29M - Standard Specification for Steel Bars, Carbon Alloy, Hot-Wrought, General Requirements; 2012.

C. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2015.

E. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds; 2013.

F. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel; 2015.

G. ASTM D1143/D1143M - Standard Test Method for Deep Foundations Under Static Axial Compression Load; 2007 (Reapproved 2013).

H. DFI TM-GLOS-1 - Deep Foundation Institute Technical Manual; Glossary of Foundation Terms; 1981.

I. RCSC (HSBOLT) - Specification for Structural Joints Using High-Strength Bolts; Research Council on Structural Connections; 2009.

J. SAE J429 - Mechanical and Material Requirements for Externally Threaded Fasteners; 2011.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation meeting: Conduct a preinstallation meeting one week prior to start of work of this section; require attendance by all affected installers.

1.06 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Designer's Qualification Statement.

C. Product Data: Product list, with manufacturer's model designations; published capacities for installed assemblies, including load transfer devices.

D. Design Data: Submit documentation of foundation design, signed and certified by foundation designer; include:
   1. Statement that proposed foundations meet specified design criteria.
   2. Nominal load on each foundation element.
   3. Maximum allowable installation torque of each selected product.
   4. Calculated theoretical geotechnical capacity.
   5. Minimum effective torsional resistance requirements.
   6. Minimum embedment lengths and such other site specific embedment depth requirements.
   7. Inclination angle and location tolerance requirements.
   8. Pre-tensioning requirements, if any.
   9. Submit not less than four weeks prior to start of foundation installation.

E. Calibration Reports for Testing Equipment: Submit certified copies of calibration of torque measuring equipment and load test measuring equipment to be used on project, performed within one year of starting date of installation.

F. Installer's Qualification Statement.

G. Surveyor's Qualification Statement.

H. Installation Logs:
   1. Submit a copy of the log of each individual foundation element within 24 hours after installation is completed.
   2. Submit final copy of all installation logs within two weeks after completing all helical foundation work.

I. Field Test Reports.

J. Project Record Documents: After work is complete, submit certification from surveyor that installed foundation locations are as shown on the drawings.

1.07 QUALITY ASSURANCE

A. Designer Qualifications: Experienced in design of helical foundations of the type involved on this project, as evidenced by:
   1. State registration/licensure as a professional engineer.
   2. Recognition by local authority having jurisdiction.

B. Installer Qualifications: Experiences in installation of helical foundations of the type involved on this project, as evidenced by:
   1. Manufacturer's certificate of competency in installing helical piles.
   2. List of three or more similar projects completed within the previous three years and names of representatives who can verify such participation.
   3. Letter from manufacturer stating ability and intent to provide on-site supervision.

4. List of all safety violations lodged against installer within previous three years and current status/final resolutions thereof.

C. Surveyor Qualifications: Engineer or land surveyor licensed in the State in which the Project is located.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Helical Piles and Anchors:
1. Foundation Supportworks, Inc; _____: www.foundationsupportworks.com.
2. ABChance: www.ABChance.com
3. EPC Products: www.earthcontractproducts.com
4. KCMaster: www.KCMaster.com
5. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 HELICAL FOUNDATION DESIGN CRITERIA

A. It is Contractor's responsibility to design, or obtain qualified design, of the helical foundations as indicated in the contract documents.
1. Information necessary for design that is contained in the contract documents includes:
a. Locations of foundation elements.
b. Nominal design load for each foundation element, including dead load, live load and other loads required by building codes.
2. Subsurface geotechnical data may be obtained from The Geotechnical Engineering Report dated Sept. 9, 2015 from Alfred Benesch and Co. - See Addenda No. 1.

B. Helical Foundation Elements: One or more helical deformed plates (helix plates) attached to a central shaft with a load transfer device for attachment to a structure; entire element resisting applied loads by soil pressure.
1. Design foundations to support/resist the nominal design loads shown on the drawings, in accordance with, AISC 360, Allowable Stress Design method.
2. Select foundation elements based on allowable installation torque and calculated minimum embedment length; maximum embedment length, if any; and minimum effective torsional resistance.
3. Corrosion Service Life: 50 years, minimum.
4. Use solid square shaft helical anchors where subject to tension alone.
5. Use hollow, round shaft helical foundations where subject to compression only or to alternating tension and compression.

C. Helical Anchors:
1. Base design on published capacities that represent entire anchor including couplings and connections.
2. Safety Factor: 2 times ultimate pullout/bearing resistance, minimum.
3. Axial Deflection at Nominal Tension Load: 1/4 inches, maximum.
4. Pre-tensioning of anchors is acceptable method of reducing deflection at service loads.

D. Helical Piles:
1. Design with pile shaft sections in direct contact with couplings and no coupling bolts or welds in load path.
2. Safety Factor: 2 times ultimate bearing resistance, minimum.
3. Deflection: As indicated on drawings.
4. Fit Up Tolerance: 1/16 inch, maximum.

2.03 MATERIALS

A. All Components: Hot-dipped galvanized in accordance with ASTM A123/A123M.

B. Helical Anchors: Solid, square shaft of hot rolled, solid, Round-Cornered-Square (RCS), carbon steel bar complying with ASTM A29/A29M.
1. Size: 1-1/2 inch square.
2. Torque Strength: 6,000 foot-pounds.
3. Minimum Yield Strength: 90 kips per square inch.

C. Helical Anchors and Piles: Hollow, round shaft of structural steel tube or pipe (rolled) complying with ASTM A572/A572M.
   1. Size: 2-7/8 inches O.D. by 0.203 inch wall thickness.
   2. Torque Strength: 6,000 foot-pounds.
   3. Minimum Yield Strength: 60 kips per square inch.

D. Helical Anchors and Piles: Hollow, round shaft of structural steel tube or pipe (welded or seamless) complying with ASTM A500/A500M.
   1. Size: 2-7/8 inches O.D. by 0.276 inch wall thickness.
   2. Torque Strength: 8,000 foot-pounds.
   3. Minimum Yield Strength: 60 kips per square inch.

E. Helical Anchors and Piles: Hollow, round shaft of structural steel tube or pipe (rolled) complying with ASTM A572/A572M.
   1. Size: 3-1/2 inches O.D. by 0.313 inch wall thickness.
   2. Torque Strength: 16,000 foot-pounds.
   3. Minimum Yield Strength: 65 kips per square inch.

F. Helix Plates: Round steel plates formed into helical spiral on matching metal dies to true helical shape and uniform pitch; welded to central shaft with all plates tracking the same path as leading helix.
   1. Material: Hot rolled carbon steel sheet, strip, or plate complying with ASTM A36/A36M or ASTM A572/A572M, Grade 50.
   2. Thickness: 3/8 inch
   3. Profile: True helix-shaped plates, normal to shaft, leading and trailing edges within 1/4 inch of parallel.
   4. Pitch: 3 inches plus or minus 1/4 inch. All helix plates shall have uniform pitch.
   5. Edge Profile: Circular edge.
   6. Spacing: Between 2.4 and 3.6 times helix diameter.

G. Bolts: SAE J294, Grade 8, bolts with nut.

H. Couplings: Integral to shaft.

I. Anchor Plates or Pile Caps: Load-transfer assembly welded from structural steel complying with ASTM A36/A36M.

PART 3 EXECUTION

3.01 PREPARATION

A. Protect structures near the work and underground utilities from damage.

B. Mark underground utilities as required by authority having jurisdiction. Avoid contact with all marked underground facilities.

C. Locate the starting point of installation in relation to existing site elevation.

D. Notify Owner at least 24 hours prior starting to installation.

3.02 INSTALLATION

A. Install helical foundations as shown on drawings and approved design documentation. In event of conflict between drawings and approved anchorage design documentation, do not begin construction on any affected items until such conflict has been resolved.

B. Comply with manufacturer's written installation requirements and recommendations for specific project site and conditions.

C. Use installation methods that will not cause damage to existing adjacent or nearby structures.

D. Keep and submit a log of helical foundation installations, including the following data:
   1. Date and time of installation.
   2. Location of foundation element.
   3. Installed foundation type and configuration.
   4. Foundation reveal.
   5. Total length of installed foundation element.

6. Installed inclination of foundation element.
7. For compression piles, installation torque measurements taken in one to three foot increments of total length.
8. Actual effective torsional resistance.
9. Calculated geotechnical capacity based on actual torsional resistance and soil parameters appropriate for subsurface conditions within three helix diameters above helix depth.
10. Comments pertaining to interruptions, obstructions, or other relevant information.

E. If required, position inclined helical anchors perpendicular in order to assist in advancement into soil before establishing required batter angle; after initial penetration, establish required angle of inclination

F. Engage helical sections into soil and advance in a smooth, continuous manner at a rate of rotation of 5 to 25 RPM.

G. Apply sufficient down pressure to uniformly advance helical sections a distance per revolution approximately equal to pitch of helix plates.

H. Adjust rate of rotation and magnitude of down pressure for specific soil conditions and depths.

I. Provide extension sections as required to achieve required results.

J. Achieve both minimum embedment length and minimum effective torsional resistance prior to terminating foundation installation.

K. Location Tolerances:
1. Pile Head Horizontal Tolerance: Within 3 inches of location shown on drawings.
2. Pile Shaft Angular Tolerance: Within 2 degrees of inclination angle shown on drawings.
3. Anchor Head Location Tolerance: Within 2 inches laterally and 2 inches longitudinally of location shown on drawings.
4. Anchor Shaft Angular Tolerance: Within 2 degrees of inclination angle shown on drawings.

3.03 ACHIEVEMENT OF EFFECTIVE INSTALLATIONS

A. In the event that the initial installation of a foundation element does not achieve both minimum embedment length and minimum effective torsional resistance, adjust, repair, or replace that foundation element so that it does achieve both requirements.
1. The following procedures are considered acceptable and do not require prior approval unless otherwise indicated.
2. All other proposed remedies must be approved by Owner prior to implementation.

B. Minimum Embedment Length Achieved Before Achieving Minimum Effective Torsional Resistance: Use one of the following procedures:
1. Continue installation to greater depths until minimum effective torsional resistance is achieved, provided that, if maximum length constraint is applicable, continued installation does not exceed said maximum length.
2. Demonstrate acceptable foundation performance through testing.
3. Replace foundation with one having a different helix configuration, as follows:
a. Embed replacement to a length placing last helix at least three times its own diameter beyond position of first helix of replaced foundation.
b. Achieve minimum effective torsional resistance.
c. Do not exceed any applicable maximum embedment length.
d. Test replacement.

C. Allowable Torque Rating Reached Before Achieving Minimum Embedment Length: Use one of the following procedures:
1. If permitted by Owner, terminate installation at length achieved.
2. Replace foundation with one having either a higher torsional strength rating or a different helix configuration, as follows:
a. Achieve minimum embedment length and minimum effective torsional resistance.
b. Embed replacement to length that places last helix at least three times helix diameter beyond position of first helix of replaced foundation.
c. Do not exceed any applicable maximum embedment length limit.

3. If allowed by location tolerance or approved by Owner, remove foundation section and reinstall as follows:
    a. Position reinstalled foundation at least three times diameter of largest helix away from initial location.
    b. Achieve original embedment length and torsional resistance criteria.
    c. If repositioning requires installation of additional helical foundations, adjust nominal loads for spacing changes.

D. Maximum Embedment Length Reached Before Achieving Minimum Effective Torsional Resistance: Use one of the following procedures:
1. If allowed by location tolerance or approved by Owner, remove and reinstall foundation as follows:
    a. Position reinstalled foundation at least three times diameter of largest helix away from initial location.
    b. Achieve original minimum embedment length and minimum effective torsional resistance.
    c. If repositioning requires installation of additional helical foundations, adjust nominal loads for spacing changes.
2. Demonstrate acceptable foundation performance through testing.
3. De-rate load capacity of helical foundation and install additional foundations as necessary; de-rated capacity and additional foundation location shall be subject to approval of Owner.
4. Replace foundation with one having a different helix configuration; achieve minimum embedment length and minimum effective torsional resistance.

E. Failure of Field Quality Control Test: Use one of the following procedures:
1. Install foundation to a greater depth and installation torque and re-test provided that, if a maximum embedment length constraint is applicable, continued installation will not exceed said maximum length constraint.
2. Replace foundation with one having a different helix configuration. Embed last helix at least three times its own diameter beyond position of first helix of replaced foundation without exceeding any applicable maximum embedment length requirements. Re-test replacement.
3. If approved by Owner, de-rate load capacity of helical foundation and install additional foundations at positions that are at least three times diameter of largest helix away from any other foundation locations; space anchors in cohesive soils not closer than four helix diameters.

3.04 FIELD QUALITY CONTROL

A. See Section 01 40 00 - Quality Requirements, for additional requirements.

B. Owner will employ independent testing agency to field test helical foundations.

C. Contractor shall cooperate with testing agency and provide full access to installed foundations.

D. Failure of Tests: Replace or re-drive, and re-test, helical foundations that any fail test and cannot be remedied using any of the procedures described above in "ACHIEVEMENT OF EFFECTIVE INSTALLATIONS" article.

END OF SECTION