City of Carlisle, Iowa Planning and Zoning Commission Regular Meeting <u>August 21, 2023</u> 7:00 P.M. City Council Chambers – 100 N. 1st Street

Join Zoom Meeting - https://zoom.us/j/9951930479Meeting ID: 995 193 0479One tap mobile - Call 1-312-626-6799, enter 995 193 0479# when promptedWe encourage all videoconferencing or calling in to let staff know who you are for the record and then mute your
microphone or phone until you would like to speak to provide a better overall experience.

Call to order

Determine quorum

New Business and Action Items

1. Discussion and Possible Action on Site Plan For Heartland Coop 2023 Expansion

Administrator/Engineer/Commission Reports

Adjournment

<u>** PLEASE NOTE THAT THIS AGENDA MAY CHANGE UP TO 24 HOURS PRIOR TO</u> <u>THE MEETING **</u>



FOX Strand 414 South 17th Street, Suite 107 Ames, IA 50010 (P) 515.233.0000 www.strand.com

DATE:	August 16, 2023
TO:	Deven Markley City Administrator, City of Carlisle 100 N. 1 st Street Carlisle, IA 50047
RE:	Heartland Coop Expansion (2023) Project No. 7023.067 City of Carlisle, Iowa (City)

FOX Strand has completed the fourth review of the Site Plan documents submitted for the proposed Heartland Coop expansion as sent to FOX Strand via email on August 11, 2023 and offer the following comments:

General Site Plan Comments (for P&Z and Council):

- 1. Carlisle City Council granted conditional approval for work proposed at the Heartland Coop site based on discussion at the March 13, 2023 Council Meeting. Approval of site improvements and subsequent permitting was approved subject to submittal of a site plan that meets City Code requirements.
- 2. The City is not requiring a storm water management plan for the proposed improvements presented at this time per discussion at the March 13, 2023 Council Meeting.
- 3. Applicant understands they must formally permit site improvements through Safe Building.
- 4. Applicant has stated that water/sewer service is via private facilities.
- 5. Heartland Staff has stated that additional bins will not increase the traffic to the site and should not affect traffic on adjacent public roadways.
- 6. Heartland Staff has stated that they intend to work with City Staff to find a location where their western driveway will tie into the SE 52nd Street paving at a suitable location away from the SE 52nd/SE64th intersection. At this time, no driveway change is planned (will wait until the intersection and/or roadway improvements are further along).
- 7. No landscaping is being proposed.
- 8. No lighting is being proposed.
- 9. No screening is being provided for the site plan. Per Code: *Any storage area, garbage storage, junk storage or loading docks, and loading areas in any district shall be screened from public street view by a buffer*. **Discussion is necessary** whether the City believes the site should have additional screening for the proposed improvements since the site is generally one large loading area. At a minimum, the City should consider requiring screening for future improvements.

Deven Markley Heartland Coop Expansion (2023) Page 2 August 16, 2023

Comments on Future Improvements:

- 10. This site plan review excludes improvements listed as "future". However, the following comments are for consideration by Applicant for future planning:
 - a. The City has requested an opinion by their legal counsel regarding where setbacks begin/end relative to property ownership and roadway easement. This is to advise City Staff for future reviews as the future bins are shown near the roadway easement line.
 - b. Future bins will require removal of an existing detention bason. It is likely that removal of said basin will require detention be provided at another location on-site to achieve City storm water management requirements. As such, a formal storm water management plan signed by an engineer will be required for future expansion of the Heartland site.
 - c. A traffic impact study may be necessary for future expansions.
 - d. It may be necessary to pave portions of the vehicular use area to mitigate airborne dust issues. Per Code: In Industrial properties, the area from the front yard to the front face of the building shall be hard surfaced. The remaining area could be gravel surfaced. If no building is on the property, then the area from the front yard to the building setback shall be hard surfaced. The City may require dust mitigation in the future.

SITE PLAN REVIEW SCHEDULE:

PLANNING & ZONING:	August 21, 2023 at 7:00 PM at Carlisle City Hall
COUNCIL MEETING:	August 28, 2023 at 6:30 PM at Carlisle City Hall

If you have any questions or concerns, please contact Mitch Holtz at 515-233-0000.

Sincerely,

FOX Strand

Mitch Holtz, P.E.

c: Deven Markley, City Administrator, City of Carlisle

(2) 90'-0" I.D. X 200'-0" HIGH GRAIN STORAGE SILOS FOR HEARTLAND COOPERTIVE CARLISLE, IOWA 50047

CONSTRUCTION SPECIFICATIONS

1. Concrete materials shall conform to the appropriate state requirements for exposed structural concrete and shall develop minimum compressive strength at 28 days as follows: A. All concrete is 4000 PSI

Selection of concrete proportions shall be based on the previous field experience method or by the laboratory trial batch method. For each method the proposed mix design must be submitted to the engineer for review along with written reports of all required testing and analysis.

2. Concrete slump shall not exceed 5" when placed in the forms for all construction except silo walls. Concrete slump shall not exceed 5 1/2" when placed in forms, without a water reducer. Slump may be increased up to 8" when a water reducer is used. All admixtures need to be approved by engineer of record. Water/cement ratio shall not exceed that specified below.

3. Concrete shall contain at least 564 lb./C.Y. of cementitious material and water/cementitious material ratio shall not exceed .50 for non-air entrained concrete, and .45 for air entrained concrete. The use of Types 1p or 1s Portland Cement in the silo wall mix is not permitted. All mix designs shall be approved by the Engineer of Record.

4. Concrete shall have 5% (±2%) air entrainment.

5. Maximum aggregate size shall not exceed 1". All fine and course aggregates shall conform to ASTM C33. Ratio of fine to total aggregates based on solid volumes shall be between 0.35 and 0.50.

6. Reinforcement shall be deformed and conform to the requirements of ASTM A615 Grade 60 including supplementary requirements S1, unless otherwise noted. Grade 40 reinforcement shall not be used for any part of this construction. Note: All rebar is Grade 60 unless noted otherwise. All extra horizontal reinforcement to match same grade & type horizontal steel installed in the area unless otherwise noted. (If Grade 75 hoop used, extra horizontal steel will be Grade 75.)

7. Continuous horizontal hoop reinforcement shall be lapped as follows: **CONTINUOUS HOOPS & HORIZONTAL BARS**

Bar Size	Lap Length
#4	26"
#5	30''
#6 GR 75	43''
#7 GR 75	59"
#8 GR 75	67''
#9 GR 75	81"

8. Vertical reinforcement, foundation, and tunnel shall be lapped as follows unless noted otherwise:

	Bar Size	#4	#5		
	Lap Length	1'-6"	2'-0''		

Horizontal and vertical reinforcement lap splices shall be staggered. Adjacent hoop reinforcement splices shall be staggered horizontally by a minimum of one lap length or 3'-0", whichever is greater, and shall not coincide in vertical array more frequently than every third bar.

9. Welding or heating of reinforcing steel is prohibited. Field cold bending of reinforcing bars shall conform to ACI 315. Bend radius shall not be less than specified in ACI 315.

10. Concrete cover (clear distance from forms to bars) shall be as follows unless otherwise noted on the drawings: Bottom bars of slabs cast against earth: $3''(\pm 1/2'')$

All reinforcing: As specified on construction dwgs.

11. Vertical and horizontal bars tied together shall be arranged as shown on the construction drawings with particular attention as to which layer is closest to forms and which layer is tied inside the outer layer. Bar spacing shall average the spacing shown on the drawings over a 5'-0" distance and individual bar spacing shall not vary more than 1" from the spacing shown unless approved by the engineer.

12. Reinforcing steel and embedded steel items shall be securely tied and supported to prevent dislodging or movement during concrete placement.

13. Any loose or unsuitable materials found at the base of excavation shall be stabilized or over-excavated and replaced with compacted fill.

14. Vegetation, debris, and organic topsoil shall be removed from beneath the foundation and replaced with structural backfill. Said backfill shall be compacted in (8) inch max. layers to 98% of maximum dry density at its optimum moisture content (+/-3%) in accordance with ASTM D6938-10 (Standard Proctor Test). Compacted fill shall be granular material. Do not utilize broken paving, top soil, or organic soils as structural fill. Perfom (3) tests per 2750 sq feet of placed material and per one (1) vertical foot of engineered backfill.

15. Concrete for silo walls shall be placed within 5'-0" of its final position in a way that will prevent aggregate segregation and shall not be worked or vibrated a horizontal distance of more than 5'-0" from the point of deposit.

16. Adequately vibrate concrete immediately after placing to prevent honeycombing. Avoid over-vibrating to prevent aggregate segregation and excess bleed water.

17. Forms shall be clean, tight, and adequately constructed and braced to prevent movement and excessive bulging. Form tolerances are specified in ACI 318.

18. Loose material shall be removed from bottom of excavation prior to concrete placement.

19. Silo construction tolerances shall be as specified in ACI 313 as follows: A. Translation of silo centerline or rotational spiral:

- 4" max.
- B. Silo inside diameter: ±5" C. Silo wall thickness: +1" to -3/8"
- 1.0 Wall thickness is the average of (4) four readings over a
- 12'-6" wide area. Readings are equally spaced.
- D. Opening and embedded item locations: ±1" horizontally and vertically
- E. Opening top elevation: +1" -0"
- Opening bottom elevation: -1" +0"
- Opening side location: ±1", but opening width no less than that shown on drawings.

20. Other construction tolerances shall conform to the provisions of ACI 117-10 as specifically noted.

21. Bug holes or surface air voids (see ACI 201.1R) or other similar small voids in the concrete wall surface shall be removed and /or patched only when reinforcement steel is exposed by the void.

22. Honeycombed concrete (see ACI 201.1R) or other similar unconsolidated areas shall be filled or patched when one or more of the following conditions applies:

- A. The honeycombed area is more than 4 feet in length or height.
- B. The honeycombed area is more than 1" deep. Note that a projection beyond the wall surface at a joint is not a Honeycomb. C. Reinforcement steel is exposed by the honeycombed area.

23. When voids or honeycombed areas require filling or patching, the following procedures shall apply: A. The concrete surface shall be chipped out to remove thin or weak

areas. B. The concrete surface and the edges of the repair area shall be

chipped out to a minimum depth of $\frac{1}{2}$ ". C. The concrete surface shall be patched with a cement grout mix of materials similar to those used in the construction of the wall.

D. An approved epoxy or non-reimulsifiable latex bonding agent shall be applied to the wall patch area prior to placing the grout mix. E. Care shall be taken to fill the wall repair area with no trapped air voids or pockets.

24. Surface fins and protrusion will be removed only if 2" or more in size, as defined by ACI 117 - Section 4.8.3. A smaller fin or protrusion shall be removed only where it interferes with the attachment or installation of equipment or structures to the face of the wall.

25. No specific curing methods are employed for the silo wall. Moist curing in the forms is not performed, nor are chemical curing compounds to be applied.

26. The lower set of forms may be removed and advanced when the wall concrete has reached sufficient strength, in the opinion of the silo construction superintendent, for the concrete wall to be self supporting. At a minimum, the wall forms shall not be removed for at least four (4) hours after completion of the pour of that wall section. No concrete strength testing is required to document form removal and advancement of the jumpform wall forms.

CONCRETE CONSTRUCTION SPECIFICATIONS

27. Construction joints are permitted only in locations shown on the construction drawings. The circumferential jump form wall joints shall conform to the following requirements:

- A. Standard rigid joint stop shall be placed in the top of the previous pour with a 2" (+ or -1/2") projection above the
- surface. B. The joint surface shall be left in a natural roughened state. No intentional roughening, keyway, tooling or finishing of the joint
- is required. C. Vertical reinforcement steel shall protrude through the joint as noted on the drawings.
- D. No bonding agent is required at the joint.
- E. No water blasting, shot blasting, grinding or other joint preparation is required.
- F. Prior to the advancement of the forms at the joint, the joint
- surface shall be examined around the full perimeter of the silo. All loose aggregate, cement paste and construction debris shall be removed. Removal of surface laitance is not required.
- G. Concrete that is older than 3 days shall be thoroughly moistened prior to placing the next lift.

28. The preparation of an "unintentional or emergency" cold joint in the silo jumpform wall shall conform to the following requirements: A. An "unintentional or emergency stop" is defined as an unforeseen

- condition caused by equipment failure, loss of electrical power, loss of concrete supply, weather conditions or other circumstances that interrupts the placement of concrete to such an extent that the jumpform process must be stopped in a "controlled" manner. A "restart" is defined as the placement
- of concrete on top of the existing wall after an "unintentional/emergency stop" has occurred.
- B. Before the jumpform process is restarted and concrete is placed the cause or reason for the stoppage must be corrected and verified as required by the necessary personnel responsible for
- the respective work or cause of the stoppage. C. The wall top shall be prepared as follows for the restart of the jumpform process:

1. The top of concrete placed in the wall at the time of stoppage, shall be leveled to the extent possible, (manually or by vibration) and the standard ridged joint stop inserted.

2. Step 1 is completed, no further surface preparation is required as the joint is the equivalent of the standard construction joint designed for every four feet (4') of silo wall.

3. In the event that Step 1 cannot be completed, the licensed design professional shall be advised and a procedure will be provided to address the construction joint given the variables existing at the time. In all cases, the forms shall be cleaned of accumulated concrete whether by hand or vacuum.

4. The wall top should be inspected to verify the removal of all foreign and loose debris before restarting.

D. The restart of the jumpform process shall follow the following procedures:

1. The surface of the prior lift shall be thoroughly moistened prior to placement of any additional concrete.

2. The first one (1) foot of concrete above the cold joint shall have one (1) extra bag of cement added per cubic yard. This is to allow for the controlled addition of water to increase the slump $\frac{1}{2}$ " to one (1) inch.

3. Before placing any concrete the wall top and forms shall be wetted down with water.

4. The first layer of new concrete shall be placed to a thickness of six (6) to ten (10) inches and vibrated in accordance with proper usage of the concrete vibrator in the jumpform process.

5. After this procedure has been completed the normal usage of concrete mix, slump etc. may continue.

29. The use of any special admixtures or pozzolans in the concrete mix shall be reported to the engineer and approved prior to concrete ordering. Report type of admixture, amount to be used per cubic yard, and admixture manufacturer. The use of calcium chloride will not be allowed.

30. Notify owner and/or owner's representative and/or 3rd party testing firm prior to concrete placement. Owner and/or owner's representative shall be allowed to inspect the work, including reinforcing steel and concrete placement. Inspection may include obtaining concrete cylinders, measuring slump, and checking fill density.

31. Recommended concrete strength testing shall be performed as specified in ACI 313 and as follows:

- A. Obtain at least one set of (5) standard cylinders for each (8) hour period of placement, or each 100 cubic yards placed, or
- each structural component completed or as defined by Engineer of Record. Cylinder sampling method shall conform to ASTM C31, "Method of Making and Curing Concrete Compression Specimens in the Field".
- B. Cylinder testing shall conform to ASTM C39, "Test for Compression Strength of Cylinder Concrete Specimens". One cylinder shall be tested at (7) days, and three cylinders shall be tested at 28 days. Hold fifth cylinder.
- C. It is recommended the Owner keep all concrete test reports for a period of at least two years after the completion of construction. D. Silo walls shall be tested every 3rd pour (12 lf) with a standard set of cyclinders.
- E. Production Piles shall take 1 set of cubes per day and/or every 100 cy of grout placed. Set shall consist of (6) cubes per set. Strenath test shall be reported 1@7 days, 3@28 days, 2 - Spare.

32. Concrete shall be mixed and delivered as per the specifications of ASTM C94. When the temperature is between 85° F. and 90° F., reduce the mix and delivery time from 1 1/2 hours to 75 minutes. When the temperature is above 90° F., reduce mix and delivery time to 60 minutes. Do not use concrete that has stood more than 30 minutes after leaving the mixer. The time interval between placement shall be short enough to avoid cold joints at other than jump elevations.

33. Construction joints are permitted only in locations shown on the construction drawings. Other joint locations must be approved by the engineer. Water-stops and water-barrier shall be installed at joints as indicated on the construction drawings.

34. Cold weather protection is required whenever the mean daily temperature is 40° F. or below for three consecutive days, or when forecasted conditions are for mean temperatures below 40° F. for more than one half of a 24-hour period. If temperatures are above 50° F. for more than one half of a 24-hour period, that day is not considered a cold weather day for the purpose of determining protection. Contact engineer if this criteria is met for cold weather procedures.

35. Hot weather concreting shall be in accordance with ACI 305R. A water reducing retarder shall be added to the concrete mix when the temperature of the concrete exceeds 75° F. The temperature of concrete shall not exceed 90° F. when placed. The surface of the prior lift shall be thoroughly moistened prior to placing the next lift of concrete.

36. Finished grade surrounding structures shall be sloped to provide adequate drainage away from structures.

37. Owner shall be responsible for dewatering excavations as groundwater and rainfall conditions require, to construct the work in the dry.

38. Compact backfill located outside of below-grade walls that will be below traffic areas.

drawings.

drawings.

1. Material, detailing, design, manufacture, and erection of metal decks

deck work.

3. Butt ends of decking over supports.

1. CODES:

International Building Code

2. LOADS

Seismicity: Ss = 0.063 $S_1 = 0.053$ Soil Site Class B Risk Category = 11 Importance Factor = 1.0

Dead Load = 71 psf Live Load = 87 psf

3. MATERIAL PROPERTIES CORN/BEANS 50 PCF Weight - Design WT 31.5 Internal angle of friction (k=.478) 0.442 Coefficient of friction on concrete

#231139 dated 2-15-2023.

2. 16" diameter, 25'-6" long, 3'-0" min. embedment into shale, 4000 psi grout will be placed. Load test will be performed to confirm a pile capacity of 120 Ton.

SILO FILL PROCEDURES

- Hoffmann, Inc. recommends that the following procedure be used the first filling of each silo in order to monitor the initial settlements:
- A. Fill silo to 50% capacity and let stand for a period of at least 24 hours.
- B. Fill silo to 75% capacity and let stand for a period of at least 24 hours.
- C. Fill silo to full capacity and let stand for a period of at least 24 hours.
- D. Discharge silo as needed after completing the above filling steps.

Adherence to the above filling procedure will allow the silos to settle more

gradually and provide the time needed to monitor the effects on the silos and heir attachments. It is recommended that any mechanical slip connection between silos be observed to ensure that they function properly. These connections are ormally found in conveyor systems and connecting catwalks.

STRUCTURAL STEEL

1. All structural steel shall be 36 ksi unless noted otherwise on

2. Use E70XXX electrodes for field welds as indicated on construction

3. All bolts shall be tightened to a snug-tight condition using a wrench, unless noted otherwise. Snug-tight is defined as all steel ply being in contact. Field laborer shall inspect to insure all ply are in contact. No additional inspection is required.

METAL DECK

shall be according to the Steel Deck Institute (SDI) Specification. 2. In no case shall welding to steel members be less than 5/8" diameter puddle welds or powder actuated fasteners at 12" O.C. at all supports and edges. Spans greater than 5'-0" shall have side laps fastened with

#12 Tek screws, minimum one at each mid-span or 36" c/c. Opening edges shall receive the same requirement as deck ends. All welding shall be done by certified welders experienced in light gauge, metal

4. Corrugated form deck: Roof Decking 1.5VL 22 Ga. *(2) SPAN CONDITION*

DESIGN CRITERIA

American Concrete Institute, 318 American Concrete Institute, 313-16 American Institute of Steel Construction, 13th Edition

American Society Civil Engineers ASCE 7-16

Wind: Basic wind speed = 110 mph Exposure = CRisk Category = 11

AUGER-CAST PILES & GRE PILES

1. Soils data is taken from geotechnical engineering report prepared by Allender Butzke Engineers, report # PN171134 dated 2-17-2017 and Allender Butzke soil borings report

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			INDEX
PG #	H.I. DWG. #	REV	DWG. TITLE
1	661-0-01	15	COVER SHEET, GENERAL NOTES, LEGEND, AND INDEX
2	661-0-02	8	SITE LAYOUT - EAST END
3	661-0-03	6	SITE LAYOUT - WEST END
4-6	9097ALTA-R1	1	ALTA/ACSM LAND TITLE SURVEY
7-18	G-001 -	1	RECEIVING PIT ADDITION - ABP ENGINEERING
19	661-0-04	5	SILO WALL GENERAL ARRANGEMENT
20	661-0-05	3	SILO ROOF GENERAL ARRANGEMENT
20	661-0-06	0	MCC ROOM GENERAL ARRANGEMENT
22	661-1-01	1	SILO 1 - PILE LAYOUT
23	661-1-02	1	SILO 1 - FOUDATION PLAN TOP MATT
24	661-1-03	1	SILO 1 - FOUNDATION PLAN, SECTIONS, AND DETAILS
25	661-1-04	5	SILO 1 - SHELL ROLL-OUT
26	661-1-05	2	SILO 1 - SHELL ROLL-OUT SECTIONS AND DETAILS
27	661-1-06	4	SILO 1 - ROOF PLAN
28	661-1-07	2	SILO 1 - ROOF SECTIONS AND DETAILS
29	661-1-08	2	SILO 1 - TUNNEL PLAN, SECTIONS AND DETAILS
30	661-1-09	2	SILO 1 - AERATION FLOOR PLAN, SECTIONS, AND DETAILS
31	661-1-10	0	SILO 1 - BOBCAT DOOR INSTALLATION
32	661-1-11	3	SILO 1 - CAGED LADDER LAYOUT, SECTIONS, AND DETAILS
33	661-1-12	3	SILO 1 - CAGED LADDER SECTIONS AND DETAILS CONT'D
34	661-2-01	1	SILO 2 - PILE LAYOUT
35	661-2-02	1	SILO 2 - FOUDATION PLAN TOP MATT
36	661-2-03	1	SILO 2 - FOUNDATION PLAN, SECTIONS, AND DETAILS
37	661-2-04	7	SILO 2 - SHELL ROLL-OUT
38	661-2-05	2	SILO 2 - SHELL ROLL-OUT SECTIONS AND DETAILS
39	661-2-06	3	SILO 2 - ROOF PLAN
40	661-2-07	2	SILO 2 - ROOF SECTIONS AND DETAILS
41	661-2-08	2	SILO 2 - TUNNEL PLAN, SECTIONS AND DETAILS
42	661-2-09	2	SILO 2 - AERATION FLOOR PLAN, SECTIONS, AND DETAILS
43	661-2-10	0	SILO 2 - BOBCAT DOOR INSTALLATION
44	661-RDL	0	ROOF DECKING LAYOUT

Λ



DRAWING DESCRIPTION: COVER SHEET, GENERAL NOTES,

6001 49TH ST S MUSCATINE, IA 52761 Н (563) 263-4733 hoffmanninc.com

CUSTOMER: HEARTLAND COOP -DESCRIPTION: (2) Ø90'-0" I.D. X 200'-0" AVON **GRAIN STORAGE SILOS** 2829 WESTOWN PARKWAY SITE ADDRESS: HEARTLAND COOP SUITE 350 P.O. BOX A WEST DES MOINES, IOWA 50266 5550 SOUTHEAST 64TH AVE CARLISLE, IA 50047

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ΚI	TIEN FERIMISSIC	IN OF HOFFMANN, INC.			LEGE	END, ANI) INDEX		
	DATE	REVISION	ΒY						
	7/31/2023	UPDATED INDEX	DCM	DRAWN BY:	RDP	DATE:	3/21/2023	SCALE: A	s noted
	8/1/2023	UPDATED INDEX		CHECKED BY:	DCM	DATE:	3/27/2023	PROPOSAL	NO.:
	8/10/2023	UPDATED INDEX	DCM	APPROVED BY:	DCM	DATE:	3/28/2023	JOB NO.:	23-661
				DWG NO.:	661-0-01	SHEET N	IO.: 1 OF 1		REV: 15



TRUE HOFFMANN NORTH NORTH

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ALTA/ACSM LAN HEARTLAN CARLISL	D TITLE SURVEY D CO-OP E, IOWA
f Section 28, Township 78 North, Range 23 West of the 5th Principal e, Polk County, Iowa; e to the North City Limits of the City of Carlisle, Polk County, Iowa, Ioc 23 West of the 5th Principal Meridian. Subject to established roads ar	cated nd S
and Pacific Railroad Company's former railroad right of way located in the est of the 5th Principal Meridian, Polk County, Iowa, Iying southwesterly of former Chicago, Rock Island and Pacific Railroad Company's main track; arcel and described as follows: North 2 degrees 31 minutes 40 seconds West 50.5 feet along the west I ning, said point being on the north right of way line of SE 64th Avenue seconds West 651.43 feet to a point on the south right-of-way line of econds East 49.40 feet along the south line of said railroad to a point of hence South 2 degrees 31 minutes 40 seconds East 616.13 feet along the ne of SE 64th Avenue; thence West 33.03 feet along the said north right	he of a line e as the on the ht of
S 1/2, SE 1/4 SEC. 28-78-23 S 1/2, SE 1/4 SEC. 28-78-23 EX. S 485 GENERAL MILLS OPERATIONS, INC. GENERAL MILLS OPERATIONS, INC. BK.7433, PG.827 2560.39'	CITY OF CARLISLE CITY LIMITS FOUND 1/2" ROD
PARCEL 1 29.55 AC GROSS 3.53 AC R.O.W. EASEMENT 26.01 AC NET 2591.08'	33.15 W. OF SEC. LINE HELD FOR NORTH LINE FORMER 33' R.O.W. POSSIBLE UTILITY EASEMENTS (SEE NOTE #17) 4945 495 497 497 497 497 497 497 497 497
- 100 36 W 2640.89'	SE CORNER SEC. 28–78–23 SW CORNER SEC. 27–78–23 FOUND 3/4" PIPE
RCEL 2: THIS PROPERTY LIES WITHIN POLK COUNTY ZONING DISTRICT FOLLOWING INFORMATION HAS BEEN OBTAINED FROM POLK COUNTY. CERTIFY THAT ANY PAST, PRESENT OR FUTURE IMPROVEMENTS ON ANCE WITH ANY PAST, PRESENT OR FUTURE REQUIREMENTS OR D PARTIES SHOULD CONTACT POLK COUNTY CONCERNING COMPLIANCE TERPRETATION OF REQUIREMENTS AND REGULATIONS. ISTRICT BULK REGULATIONS (NONRESIDENTIAL USES): NOT LISTED NOT LISTED DEPTH: 75 FEET (FREEWAY OR PRINCIPAL ARTERIAL STREET) 50 FEET (MINOR ARTERIAL OR LOCAL STREET) IDTH: 15 FEET DEPTH: 15 FEET	 12. COMMITMENT SCHEDULE B-2, EXCEPTION ITEM #13: EASEMENT FOR UNDERGROUND ELECTRIC LINES FILED IN BOOK 7575, PAGE 552. THERE IS A PROBLEM WITH THE EASEMENT DESCRIPTION IN THE DOCUMENT. THE DOCUMENT CALLS FOR THE BEGINNING POINT TO BE 1430 FEET EAST OF THE CENTERLINE OF SE 45th STREET. SE 45th STREET IS ABOUT 3/4 OF A MILE (3960 FEET MORE OR LESS) WEST OF THE WEST LINE OF THE SUBJECT PROPERTY. THE SURVEYOR HAS DEPICTED A POSSIBLE EASEMENT LOCATION BASED ON A BEGINNING POINT THAT IS 1430 FEET EAST OF THE CENTERLINE OF SE 52nd STREET (SEE SHEET 2 OF 3). A MIDAMERICAN ENERGY TRANSFORMER BOX LIES 22.8' EAST AND 25.1' NORTH OF THE CENTER END OF THIS POSSIBLE EASEMENT LOCATION. THE SURVEYOR HAS NO ACTUAL KNOWLEDGE OF THE INTENDED EASEMENT LOCATION. THE SURVEYOR HAS NO ACTUAL KNOWLEDGE OF THE INTENDED EASEMENT LOCATION. 13. COMMITMENT SCHEDULE B-2, EXCEPTION ITEM #14: EASEMENT FOR PUBLIC HIGHWAY FILED IN BOOK 2972, PAGE 99. THIS EASEMENT IS FOR RIGHT OF WAY OF SE 64TH AVENUE RUNNING ALONG THE SOUTH SIDE OF THE SUBJECT PROPERTY AS DEPICTED HEREON. 14. COMMITMENT SCHEDULE B-2, EXCEPTION ITEM #15: EASEMENT FOR TRANSMISSION SYSTEMS OF ENERGY CONTAINED IN DEED FILED IN BOOK 5473, PAGE 114. THE WEST RIGHT-OF-WAY LINE OF THE FORMER C., R.I. & P. RAILROAD TRACK (THE EAST LINE OF PARCEL 2) IS THE LIMITS OF THE 50 FEET WIDTH FROM THE MAIN LINE THAT THE SURVEYOR ASSUMES TO BE REFERENCED IN THE EASEMENT RESERVED. THERE IS NOT A MAINLINE TRACK OF THIS OR ANY OTHER RAILROAD WITHIN 50 FEET OF THE SUBJECT PROPERTY. THIS
OT INCLUDE THE RESULTS OF ANY ENVIRONMENTAL OR GEOTECHNICAL E SURVEYOR IS NOT QUALIFIED TO EXPRESS ANY OPINION ON (NOR ENTAL OR GEOTECHNICAL INVESTIGATIONS. ERE MADE INSIDE ANY BUILDING OR STRUCTURE LOCATED ON THE O SE 52ND STREET ARE PUBLIC ROADS MAINTAINED BY POLK COUNTY	 EXCEPTION ITEM WAS DELETED IN COMMITMENT REVISION 1. 15. COMMITMENT SCHEDULE B-2, EXCEPTION ITEM #16: EASEMENT FOR RAILROAD PURPOSES CONTAINED IN DEED FILED IN BOOK 12734, PAGE 746. THERE ARE SEVERAL RAILROAD TRACK LINES RUNNING THROUGH PARCEL 2 OF WHICH THIS EASEMENT AFFECTS. THE EASEMENT IS DESCRIBED AS 10 FEET WIDE CENTERED ON ALL TRACKS. 16. COMMITMENT SCHEDULE B-2, EXCEPTION ITEM #18: CELLULAR/WIRELESS LEASE MEMORANDUM FILED IN BOOK 7399, PAGE 66. THE MEMORANDUM INDICATES LEASE AREA TO BE WITHIN PARCEL 1, BUT IS NOT SPECIFICALLY DEFINED. LOCATIONS OF CELLULAR/WIRELESS ANTENNAE AND EQUIPMENT HAVE BEEN IDENTIFIED WITHIN PARCEL 1 AS DEPICTED HEREON.
VE. THE SUBJECT PROPERTY ADJOINS AND APPEARS TO HAVE HESE ROADS. RDED SURVEY PLATS WERE USED IN THE COURSE OF THIS SURVEY TO N OF PROPERTY BOUNDARIES: FORMER RIGHT-OF-WAY OF SE 56TH STREET IN THE SW 1/4 SEC. FOOK 10243 AT PAGE 592.	17. COMMITMENT SCHEDULE B-2, EXCEPTION ITEM #23: UTILITY EASEMENTS REFERENCED IN CITY OF CARLISLE RESOLUTION NO. 2009062201 ATTACHED TO QUIT CLAIM DEED FILED IN BOOK 13239, PAGE 667. THE SURVEYOR IS UNAWARE OF THE EXTENT OF ANY UTILITIES OPERATING WITHIN THE VACATED PORTION OF SE 56TH STREET CONVEYED BY THE DEED.
LE B-2, EXCEPTION TIEM #11: EASEMENT FOR PUBLIC HIGHWAY FILED . THIS EASEMENT IS FOR RIGHT OF WAY OF SE 64TH AVENUE TH SIDE OF THE SUBJECT PROPERTY AS DEPICTED HEREON. LE B-2, EXCEPTION ITEM #12: EASEMENT FOR PUBLIC HIGHWAY FILED . THIS EASEMENT IS FOR RIGHT OF WAY OF SE 52ND STREET	





LEGEND

- PP O- POWER POLE LP 💢 LIGHT POLE
- FH 🔍 FIRE HYDRANT
- MH 🔘 MANHOLE
- INT 🗀 STORM INTAKE CO 🔿 CLEANOUT
- WV 🛛 WATER VALVE GV 🖻 GAS VALVE
- SN 🖻 SIGN
- \longrightarrow UTILITY POLE ANCHOR
- ACC ASPHALT CEMENT CONCRETE
- PCC PORTLAND CEMENT CONCRETE

ALTA/ACSM LAND TITLE SURVEY HEARTLAND CO-OP Carlisle, Iowa

	BUILDING	~~~~~~		CELLULAR ANTENN ON THIS STRUCTUR (SEE NOTE #16)
BRACE		SCALE 90		
GRAVEL		GRAVEL	GRASS	
		GRASS		SCALE
PRK				

14.30







tkinson 7/31/2023 2:35:45 PM H:Jobs\2023\23-661 - Heartland - Carlisle, IA - Two (2) 90' x 200' Jumpform Silos\Drawings\Vendor-Customer Drawings\Customer Drawings\7-28-23 PIT Drawings\23028-G-001 (STR_COVER).dwg

..\Heartland Coop.png

AVON, IOWA (AVON LOCATION) **RECEIVING PIT ADDITION** STRUCTURAL

ISSUED FOR CONSTRUCTION

DWG. NO.	DESCRIPTION	REVISION	RE\
G-001	COVER SHEET W/ LOCATION PLAN & STRUCTURAL NOTE:	\sim	
G-002	GENERAL ARRANGEMENT PLAN	2	
S-101	FOUNDATION/SLAB PLAN	2	
> S-102	WALL PLAN	2	
S-103	FRAMING PLAN	2	
S-201	PIT CROSS SECTION	\sim	\sim
S-202	PIT CROSS SECTION	1	
~ S-203 ~~~	RIT-CROSS SECTION	$\sim 0 \sim 0$	\sim
S-204		1	~ ~ /
S-301	FOUNDATION SECTIONS & DETAILS		
S-401	FRAMING SECTIONS & DETAILS	1	
S-402	GRATING PLAN & SECTIONS	0	

ALL DIMENSIONS AND CONDITIONS REPRESENTED ON THESE DRAWINGS SHALL BE VERIFIED BY THE FABRICATOR AND/OR CONTRACTOR PRIOR TO FABRICATION, AND ANY DISCREPANCIES SHALL BE REPORTED TO THE Missing or invalid reference engineer of record, for resolution. No part of the information ISSUED FOR CONSTRUCTION 0 File: Z:\Admin\Company FilestlegotABPSDogorFilestABPDDRAWHOGABorder LogoedALperfisions TRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM, (ELECTRONIC Sheet: 1 GENERAL REVISIONS MECHANICAL, PHOTOCOPYING OR OTHERWISE), WITHOUT WRITTEN CONSENT. 440 Regency Parkway Drive Suite 200 ELECTRONIC FORMAT OF THIS DRAWING, IF PROVIDED, IS TO BE USED Omaha, NE 68114 FOR REFERENCE ONLY. THE INFORMATION CONTAINED ON THE ELECTRONIC ELES SHALL NOT BE CHANGED OR REUSED FOR ANY PURPOSE, ABP ENGINEERING IS NOT RESPONSIBLE FOR ANY DAMAGE. (402) 502-4242 LIABILITY OR COST ASSOCIATED WITH THE REUSE OR MODIFICATION OF www.abpengineeringllc.com THESE FILES FOR ANY PURPOSE.

REVISION DESCRIPTION

REVISION DATE

05-18-2023

05-18-2023 05-18-2023 05-18-2023 05-18-2023

05-12-2023 05-12-2023 ~**04-28-2023~**

05-18-2023

05-12-2023 05-12-2023 04-28-2023

STRUCTURAL NOTES

GENERAL:

- THE STRUCTURES SHOWN ARE DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THEY ARE FULLY INSTALLED AND PROJECT CONSTRUCTION IS COMPLETED. IT IS SOLELY THE CONTRACTORS RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY AND STABILITY OF THE STRUCTURES AND THEIR COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF ANY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIE-DOWNS WHICH MAY BE NECESSARY. SUCH MATERIALS SHALL REMAIN THE CONTRACTORS PROPERTY FOLLOWING COMPLETION OF THE PROJECT.
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS ELEVATIONS AND CONDITIONS IN THE FIELD PRIOR TO SHOP DRAWING SUBMITTAL, FABRICATION, AND CONSTRUCTION. ANY DELAY OR COSTS RESULTING FROM NOT VERIFYING THESE ITEMS TO BE BORNE SOLELY BY THE CONTRACTOR. DESIGN NOTES:

DESIGN PER INTERNATIONAL BUILDING CODE 2018.

- CONCRETE: • PROPORTIONING, PRODUCTION, PLACING AND CURING PER: ACI 117, 301, 302.1 R, 305R, 306.1, 318, & 347.
- 28 DAY COMPRESSIVE STRENGTH: F'c=4000 PSI.
- SLUMP: 2"-4" CONCRETE SUBJECT TO FREEZING SHALL BE AIR ENTRAINED W/AIR
- CONTENT = 6% TO 7% OF TOTAL VOLUME.
- REINFORCING BARS: ASTM A615 GRADE 60. • ANCHORS: ASTM F1554, GRADE 36
- SAW CUT CONTROL JOINTS IN CONCRETE SLABS ON GRADE SHALL BE 1/8" WIDE AND 1/4 OF THE SLAB THICKNESS IN DEPTH. CUTTING OPERATIONS SHALL BE FROM 4 TO 12 HOURS AFTER PLACING CONCRETE.
- SEALANT FOR CONCRETE SLAB CONTROL JOINTS SHALL BE A SELF LEVELING, FLEXIBLE EPOXY RESIN HAVING A SHORE "A" HARDNESS OF 50 TO 80
- PROVIDE A 3/4" (45 DEG) CHAMFER ON ALL EXPOSED CORNERS OF CONCRETE
- BEFORE CONCRETE IS PLACED, ALL EMBEDDED ITEMS SHALL BE SECURELY FASTENED IN PLACE TO PREVENT DISPLACEMENT. ANCHOR BOLTS SHALL BE TIED AT THE TOP AND BOTTOM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ASSURING ANCHOR PLACEMENT AND PLUMBNESS IN ACCORDANCE WITH THE CONCRETE DRAWINGS. STRUCTURAL STEEL:
- STEEL DESIGN PER AISC 360-10 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" USING ALLOWABLE STRENGTH DESIGN LOAD COMBINATIONS. STRUCTURAL STEEL TO BE FABRICATED BY AN AISC CERTIFIED FACILITY
- UNLESS PREVIOUSLY APPROVED BY CLIENT AND ABP.
- W & WT-SHAPES: ASTM A992.
- S SHAPES: ASTM A36
- CHANNELS, ANGLES: ASTM A36.
- HSS SHAPES: ASTM A500 GRADE B ROUND SHAPES: ASTM A53 GRADE B
- PLATE: ASTM A36
- HIGH STRENGTH BOLTS: ASTM A325 3/4" DIA UNO
- NUTS: ASTM A563 WASHERS: ASTM F436
- NEW STEEL TO BE PAINTED PER CUSTOMER STANDARDS.
- ALL FIELD WELDS TO BE 1/4" ALL AROUND UNO.
- ALL WELDING SHALL BE DONE IN ACCORDANCE WITH AWS D1.1: 2010 BY A CERTIFIED WELDER USING E70XX ELECTRODES.



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BY:	CHK'D:	DATE:	ABP PROJ NO:	23028	HFARTI	AND COOP	
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				ER:	LOCATION PLAN & STRUCTURAL NOTE		
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PAGE 9 of 44







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	BY:	CHK'D:	DATE:	ABP PROJ NO: 23028	HFARTI AND COOP				
	RA	RP	05-12-2023	DRAFTER:					
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-12" CONC SLAB NOT SHOWN FOR CLARITY

CLIENT DEPARTMENT:

DRAWING NUMBER: S-401

REV: PAGE 17 of 44

BY:	CHK'D:	DATE:	ABP PROJ NO: 23028	
RA	RP	04-28-2023	DRAFTER:	1
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661-0-04

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	ROOF OPENING & EMBED SCHEDULE (TOTAL REQ'D)									
	OPENING/EMBED SYMBOL	OPENING MARK	QUANTITY	DESCRIPTION						
\mathbb{X}	Â	RH	2	36" SQ. ROOF HATCH – BY HOFFMANN						
\boxtimes	(B)	661-RF0	6	30"X48" ROOF FILL OPENING – BY HOFFMANN						
_# _	(Ĉ)	TC B	32	Ø8" TEMP CABLE BOX – BY HOFFMANN						
\oplus	(D)	_	28	POWER ROOF VENTS – BY DECATUR AIR						
+	Ê	—	36	FREE AIR ROOF VENTS - BY DECATUR AIR						
	(F)	661-REP1	80	ROOF CONVEYOR EMBED PLATES – BY HOFFMANN						
Ļ	G	661-REP2	12	CATWALK EMBED PLATES – BY HOFFMANN						
	(H) 661-REP3		3	TOWER EMBED PLATES - BY HOFFMANN						
Ļ	Ú	661-REP4	3	CATWALK EMBED PLATES – BY HOFFMANN						
		661-REP2 661-REP3 661-REP4	12 3 3	CATWALK EMBED PLATES – BY HOFFMANN TOWER EMBED PLATES – BY HOFFMANN CATWALK EMBED PLATES – BY HOFFMANN						

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				HOF DESIGN E HOFFM	FMANN BUILD SERVICES	6001 49TH ST S MUSCATINE, IA 52761 PH (563) 263–4733 hoffmanninc.com		
			INI	CUSTOMER: HEARTLAND CO AVON 2829 WESTOWN SUITE 350 WEST DES MOIN	DOP - DESCRIPTIC N PARKWAY NES, IOWA 50266	on: (2) Ø90'-0'' I.D. X 200'-0''H GRAIN STORAGE SILOS		
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				APPROVED BY: DCM	DATE: 3/27/2023	3 JOB NO.: 23-661		
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200-0* Control Control Control Control Control Control 192-0* 10 # 4 C KR3 BARS 9 # STA. C/C, E.F. 40 192-0* 10 # 4 C KR3 BARS 9 # STA. C/C, E.F. 40 192-0* 10 # 4 C KR3 BARS 9 # STA. C/C, E.F. 40 194-0* 19 # 5 C KR3 BARS 9 # STA. C/C, E.F. 44 100 C KR7 SARS 8 # STA. C/C, E.F. 45 112-0* 10 # 6 C KR3 BARS 9 # STA. C/C, E.F. 44 100 C KR7 SARS 8 # STA. C/C, E.F. 44 100 C KR7 SARS 8 # STA. C/C, E.F. 44 101 C KR7 SARS 8 # STA. C/C, E.F. 44 101 C KR7 SARS 8 # STA. C/C, E.F. 44 101 C KR7 SARS 8 # STA. C/C, E.F. 44 101 C KR7 SARS 8 # STA. C/C, E.F. 40 102-0* 17 # 7 C K75 SARS 8 # STA. C/C, E.F. 35 101 C KR7 SARS 8 # STA. C/C, E.F. 35 101 C KR7 SARS 8 # STA. C/C, E.F. 35 101 C KR7 SARS 8 # STA. C/C, E.F. 35 101 C KR7 SARS 8 # STA. C/C, E.F. 35 112-0* 10 # C K75 SARS 8 # STA. C/C, E.F. 35 112-0* 10 # C K75 SARS 8 # STA. C/C, E.F. <t< th=""><th>ELEVATION</th><th>hoop qty., size, & spacing</th><th></th><th>JUMP</th><th></th><th>#</th><th>4 VE</th><th>RT. BARS x 10'-0'' C/C O.F. BEND</th><th></th></t<>	ELEVATION	hoop qty., size, & spacing		JUMP		#	4 VE	RT. BARS x 10'-0'' C/C O.F. BEND	
199-00 (6) # 4 CR43 BASS 9 (F SPA, C/C, E.F. 50 199-01 (6) # 4 660 BASS 9 (F) STAN, C/C, E.F. 44 189-01 (4) # 5 CR43 BASS 9 (F) STAN, C/C, E.F. 44 190-01 (5) # 5 CR43 BASS 9 (F) STAN, C/C, E.F. 44 100-01 (5) # 5 CR43 BASS 9 (F) STAN, C/C, E.F. 44 100-01 (5) # 5 CR43 BASS 9 (F) STAN, C/C, E.F. 44 14 (4) # 5 CR43 BASS 9 (F) STAN, C/C, E.F. 44 14 (4) # 5 CR43 BASS 9 (F) STAN, C/C, E.F. 44 14/00 (6) # 5 CR43 BASS 9 (F) STAN, C/C, E.F. 44 14/00 (7) # 6 CR73 BASS 9 (F) STAN, C/C, E.F. 44 18/00 (7) # 7 CR73 BASS 9 (F) STAN, C/C, E.F. 34 19/00 (7) # 7 CR73 BASS 9 (F) STAN, C/C, E.F. 33 112/00 (7) # 7 CR73 BASS 9 (F) STAN, C/C, E.F. 33 112/00 (7) # 7 CR73 BASS 9 (F) STAN, C/C, E.F. 34 112/00 (7) # 6 CR73 BASS 9 (F) STAN, C/C, E.F. 34 112/00 (7) # 6 CR73 BASS 9 (F) STAN, C/C, E.F. 35 112/00 (7) # 6 CR73 BASS 9 (F) STAN, C/C, E.F. 35 <	200'-0''				<u> </u>				
192_C7 19 H 4 GR3 D ARS 29 7 50° STA. C/C, E.F. 44 183_C7 19 S GR4 D ARS 30 7 50° STA. C/C, E.F. 44 184_C7 19 S GR4 D ARS 30 7 50° STA. C/C, E.F. 44 180_C7 19 S GR4 D ARS 30 7 50° STA. C/C, E.F. 44 180_C7 19 S GR4 D ARS 30 7 50° STA. C/C, E.F. 44 180_C7 19 S GR4 D ARS 30 7 50° STA. C/C, E.F. 44 19 S GR4 D ARS 30 7 50° STA. C/C, E.F. 44 19 S GR4 D ARS 30 7 50° STA. C/C, E.F. 44 10 S GR4 D ARS 30 7 50° STA. C/C, E.F. 44 112 C/C 10 S GR4 D ARS 30 7 50° STA. C/C, E.F. 44 112 C/C 10 S GR4 D ARS 30 7 50° STA. C/C, E.F. 43 112 C/C 10 S GR4 D ARS 30 7 50° STA. C/C, E.F. 33 112 C/C 10 S GR4 D ARS 30 7 50° STA. C/C, E.F. 34 112 C/C 10 S GR4 D ARS 30 7 50° STA. C/C, E.F. 34 112 C/C 11 S GR4 D ARS 30 7 50° STA. C/C, E.F. 34 112 C/C 11 S GR4 D ARS 30 7 50° STA. C/C, E.F. 34 112 C/C 11 S GR4 D ARS 30 5 30° STA. C/C, E.F. 34 112 C/C 11 S GR4 D ARS 30 5 30° STA. C/C, E.F. 34 118 S GR4 D ARS 30 5 30° STA S C/C,	196'-0''	(6) #4 GR60 BARS @ 8" SPA. C/C, E.F.		50			Ì		
188.07 (1) 10 25 MC (C) C, E, (C)	192'-0''	(5) #4 GR60 BARS @ 9 5/8" SPA. C/C, E.F.		49				#5 VERT. BARS	\wedge
IALC: (8) #5 GR42 BMS @ 7 y76 STA. C/C. EF. 44 IDD: (6) #5 GR42 BMS @ 7 y76 STA. C/C. EF. 45 IDD: (7) #7 GR42 BMS @ 7 y76 STA. C/C. EF. 44 IDD: (7) #7 GR42 BMS @ 7 y76 STA. C/C. EF. 44 IDD: (7) #7 GR42 BMS @ 7 y76 STA. C/C. EF. 44 IDD: (7) #7 GR42 BMS @ 7 y76 STA. C/C. EF. 44 IDD: (7) #7 GR42 BMS @ 7 y76 STA. C/C. EF. 44 IDD: (7) #7 GR42 BMS @ 7 y76 STA. C/C. EF. 39 (7) #7 GR42 BMS @ 7 y76 STA. C/C. EF. 38 (8) #7 GR42 BMS @ 7 y76 STA. C/C. EF. 34 (8) #7 GR42 BMS @ 7 y76 STA. C/C. EF. 34 (9) #7 GR42 BMS @ 6 7 y76 STA. C/C. EF. 34 (10) (7) (7) #7 GR42 BMS @ 6 7 y76 STA. C/C. EF. 34 (11) (20) (7) (7) #7 GR42 BMS @ 6 7 y76 STA. C/C. EF. 34 (11) (20) (7) (7) #7 GR42 BMS @ 6 7 y76 STA. C/C. EF. 34 (12) (7) (7) #6 GR42 BMS @ 6 7 y76 STA. C/C. EF. 34 (12) (7) (7) #6 GR42 BMS @ 6 7 y76 STA. C/C. EF. 34 (12) (7) (7) #7 GR42 BMS @ 6 7 y76 STA. C/C. EF. 34 (12) (7) (7) #6 GR42 BMS @ 6 7 y76 STA. C/C. EF. 34	188'-0''	(4) #5 GR60 BARS @ 12" SPA. C/C, E.F.		48				17 7/8" C/C I.F.	5
180-07 161 #5 CR60 JANS © 67 SIN, C/C, LF. 46 191 #4 CR75 JANS © 67 SIN, C/C, LF. 45 112-07 161 #6 CR75 JANS © 67 SIN, C/C, LF. 45 161 #6 CR75 JANS © 67 SIN, C/C, LF. 45 161 #6 CR75 JANS © 67 SIN, C/C, LF. 45 161 #6 CR75 JANS © 67 SIN, C/C, LF. 40 161 #7 CR75 JANS © 67 SIN, C/C, LF. 40 152-07 161 #7 CR75 JANS © 67 SIN, C/C, LF. 40 152-07 161 #7 CR75 JANS © 67 SIN, C/C, LF. 36 191 #7 CR75 JANS © 67 SIN, C/C, LF. 36 191 #7 CR75 JANS © 67 SIN, C/C, LF. 36 191 #7 CR75 JANS © 67 SIN, C/C, LF. 36 191 #7 CR75 JANS © 67 SIN, C/C, LF. 33 191 #7 CR75 JANS © 67 SIN, C/C, LF. 33 191 #0 CR75 JANS © 67 SIN, C/C, LF. 33 191 #0 CR75 JANS © 67 SIN, C/C, LF. 33 191 #0 CR75 JANS © 67 SIN, C/C, LF. 33 191 #0 CR75 JANS © 67 SIN, C/C, LF. 30 191 #0 CR75 JANS © 67 SIN, C/C, LF. 33 191 #0 CR75 JANS © 67 SIN, C/C, LF. 33 191 #0 CR75 JANS © 67 SIN, C/C, LF. 30	184'-0''	(5) #5 GR60 BARS @ 9 5/8" SPA. C/C, E.F.		47					
(1) #4 CR75 BARS 9 5/8" SPA. C/C. EF. 44 (3) #6 CR75 BARS 9 5/8" SPA. C/C. EF. 44 (4) #6 CR75 BARS 9 5/8" SPA. C/C. EF. 40 (4) #6 CR75 BARS 9 5/8" SPA. C/C. EF. 40 (5) #6 CR75 BARS 9 5/8" SPA. C/C. EF. 41 (4) #7 CR75 BARS 9 5/8 SPA. C/C. EF. 41 (1) #7 CR75 BARS 9 5/8 SPA. C/C. EF. 38 (1) #7 CR75 BARS 9 5/8 SPA. C/C. EF. 38 (1) #7 CR75 BARS 9 5/8 SPA. C/C. EF. 38 (1) #7 CR75 BARS 9 5/8 SPA. C/C. EF. 36 (2) #7 CR75 BARS 9 5/8 SPA. C/C. EF. 36 (3) #7 CR75 BARS 9 5/8 SPA. C/C. EF. 36 (3) #7 CR75 BARS 9 5/8 SPA. C/C. EF. 36 (7) #8 GR75 BARS 9/8 SPA. C/C. EF. 30 (7) #8 GR75 BARS 9/8 SPA. C/C. EF. 30 (7) #8 GR75 BARS 9/8 SPA. C/C. EF. 30 (7) #8 GR75 BARS 9/8 SPA. C/C. EF. 30 (7) #8 GR75 BARS 9/8 SPA. C/C. EF. 30 (7) #8 GR75 BARS 9/8 SPA. C/C. EF. 27 (8) #9 GR75 BARS 9/8 SPA. C/C. EF. 27 (9) #8 GR75 BARS 9/8 SPA. C/C. EF. 20 (9) #8 GR75 BARS 9/8 SPA. C/C. EF. 20	180'-0''	(6) #5 GR60 BARS @ 8" SPA. C/C, E.F.		46					
172-07 (3) #4 CR75 BARS 19 576: SPA. C/C. F.F. 44 (4) #6 CR75 BARS 19 579A. C/C. F.F. 43 164-07 (4) #6 CR75 BARS 19 579A. C/C. F.F. 41 (6) #7 CR75 BARS 19 579A. C/C. F.F. 40 172-07 (6) #7 CR75 BARS 19 579A. C/C. F.F. 40 179.07 (6) #7 CR75 BARS 19 675 SPA. C/C. F.F. 40 179.07 (7) #7 CR75 BARS 19 675 SPA. C/C. F.F. 38 (7) #7 CR75 BARS 19 67 575 SPA. C/C. F.F. 38 (8) #7 CR75 BARS 19 67 575 SPA. C/C. F.F. 36 (9) #7 CR75 BARS 19 67 575 SPA. C/C. F.F. 36 (9) #7 CR75 BARS 19 67 578 SPA. C/C. F.F. 33 (10) #7 CR75 BARS 19 67 578 SPA. C/C. F.F. 34 (7) #8 CR75 BARS 19 67 578 SPA. C/C. F.F. 33 (7) #8 CR75 BARS 19 67 578 SPA. C/C. F.F. 33 (7) #8 CR75 BARS 19 67 578 SPA. C/C. F.F. 34 (8) #7 CR75 BARS 19 67 578 SPA. C/C. F.F. 34 (9) #8 CR75 BARS 19 67 578 SPA. C/C. F.F. 34 (9) #8 CR75 BARS 19 578 SPA. C/C. F.F. 22 (9) #8 CR75 BARS 19 578 SPA. C/C. F.F. 22 (9) #8 CR75 BARS 19 578 SPA. C/C. F.F. 24 (9) #8 CR75 BARS 19 578 SPA. C/C. F.F. 10		(5) #6 GR75 BARS @ 9 5/8" SPA. C/C, E.F.		45					
16/14 6 0 R75 AARS 96 75A. C/C. EF. 43 164/-0 16/14 6 0 R75 AARS 96 75A. C/C. EF. 42 16/17 16/17 0 R75 AARS 96 778 SPA. C/C. EF. 40 12/2-0 16/14 7 CR75 AARS 96 778 SPA. C/C. EF. 39 17/14 7 0 R75 AARS 96 778 SPA. C/C. EF. 39 18/17 0 R75 AARS 96 778 SPA. C/C. EF. 39 19/14 7 0 R75 AARS 96 778 SPA. C/C. EF. 34 19/14 7 0 R75 AARS 96 778 SPA. C/C. EF. 34 19/14 7 0 R75 AARS 96 778 SPA. C/C. EF. 34 19/14 7 0 R75 AARS 96 778 SPA. C/C. EF. 34 112/2-0 16/14 7 0 R75 AARS 96 778 SPA. C/C. EF. 34 112/2-0 18/14 7 0 R75 AARS 96 778 SPA. C/C. EF. 34 112/2-0 18/14 8 0 R75 AARS 96 778 SPA. C/C. EF. 34 112/2-0 18/14 8 0 R75 AARS 96 778 SPA. C/C. EF. 34 112/2-0 18/14 8 0 R75 AARS 96 758 AAR. C/C. EF. 24 19/14 8 0 R75 AARS 96 758 AAR. C/C. EF. 24 19/14 8 0 R75 AARS 96 53 A/7 SPA. C/C. EF. 24 19/14 8 0 R75 AARS 96 53 A/7 SPA. C/C. EF. 24 19/14 8 0 R75 AARS 96 53 A/7 SPA. C/C. EF. 24 19/14 8 0 R75 AARS 96 53 A/7 SPA. C/C. EF. 24	172'-0''	(5) #6 GR75 BARS @ 9 5/8" SPA. C/C, E.F.		44					
16.4-0; [4] H & GR75 BARS & STSP, C/C, E.F. 42 160°; 0°; [7] H & GR75 BARS & STSP, C/C, E.F. 40; 182°; 0° [4] H 7 GR75 BARS & STSP, C/C, E.F. 39; 17] H 7 GR75 BARS & STSP, C/C, E.F. 39; 180°; 0°; 17] H 7 GR75 BARS & STSP, C/C, E.F. 39; 180°; 0°; 17] H 7 GR75 BARS & STSP, C/C, E.F. 39; 180°; 0°; 17] H 7 GR75 BARS & STSP, C/C, E.F. 36; 180°; 0°; 17] H 7 GR75 BARS & STSP, C/C, E.F. 33; 17] H 8 GR75 BARS & STSP, C/C, E.F. 33; 17] H 8 GR75 BARS & STSP, C/C, E.F. 30; 112°; 0°; 17] H 8 GR75 BARS & STSP, C/C, E.F. 30; 112°; 0°; 17] H 8 GR75 BARS & STSP, C/C, E.F. 30; 112°; 0°; 17] H 8 GR75 BARS & STSP, C/C, E.F. 30; 112°; 0°; 17] H 8 GR75 BARS & STSP, C/C, E.F. 225; 112°; 0°; 17] H 8 GR75 BARS & STSP, C/C, E.F. 226; 112°; 0°; 17] H 8 GR75 BARS & STSP, C/C, E.F. 226; 112°; 0°; 17] H 8 GR75 BARS & STSP, C/C, E.F. 226; 112°; 10] H 8 GR75 BARS & S 3/8 SPA, C/C, E.F. 221; 19] H 8 GR75 BARS & S 3/8 SPA, C/C, E.F. 221; 19] H 8 GR75 BARS & S 3/8 SPA, C/C, E.F. 121; 19] H 9 GR75 BARS & S 3/8 SPA, C/C, E.F.		(6) #6 GR75 BARS @ 8" SPA. C/C, E.F.		43					
160-07 (7) # 46 GV73 BARS # 67 //# SPA. C/C, E/F. 41 152-07 (6) #7 GV73 BARS # 67 SPA. C/C, E/F. 39 (7) #7 GV73 BARS # 67 //# SPA. C/C, E/F. 39 (7) #7 GV73 BARS # 67 //# SPA. C/C, E/F. 37 140-07 (7) # 7 GV73 BARS # 67 //# SPA. C/C, E/F. 36 (7) #7 GV73 BARS # 67 //# SPA. C/C, E/F. 36 (8) #7 GV73 BARS # 67 //# SPA. C/C, E/F. 34 (7) # 7 GV73 BARS # 67 //# SPA. C/C, E/F. 34 (7) # 7 GV73 BARS # 67 //# SPA. C/C, E/F. 34 (7) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 32 (7) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 32 (7) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 32 (8) #7 GV73 BARS # 67 //# SPA. C/C, E/F. 32 (9) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 22 (9) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 22 (9) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 22 (9) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 24 (9) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 21 (9) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 21 (9) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 112 (9) # 8 GV73 BARS # 67 //# SPA. C/C, E/F. 11	164'-0''	(6) #6 GR75 BARS @ 8" SPA. C/C, E.F.		42					
Idi M 7 GR75 BARS @ FSPA. C/C, EF. 40 152:01 Idi M 7 GR75 BARS @ FSPA. C/C, EF. 39 If M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 36 If M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 36 Idi M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 36 Idi M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 36 Idi M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 33 Idi M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 33 Idi M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 33 Idi M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 33 Idi M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 30 Idi M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 30 Idi M 7 GR75 BARS @ A 7/8' SPA. C/C, EF. 30 Idi M 7 GR75 BARS @ S 7/A G/C, EF. 30 Idi M 7 GR75 BARS @ S 7/A G/C, EF. 30 Idi M 7 GR75 BARS @ S 7/A G/C, EF. 22 Idi M 8 GR75 BARS @ S 7/A G/C, EF. 22 Idi M 8 GR75 BARS @ S 7/A G/C, EF. 22 Idi M 8 GR75 BARS @ S 7/A G/C, EF. 22 Idi M 8 GR75 BARS @ S 7/A G/C, EF. 22 Idi M 8 GR75 BARS @ S 7/A G/C, EF. 22 Idi M 8 GR75 BARS @ S 7/A G/C, EF. 22 Idi M 9 GR75 BARS @ S 7/A G/C, EF. 22 Idi M 9 GR75 BARS @ S 7/A G/C, EF. 22 Idi M 9 GR75 BARS @ S 7/A G/C, EF. 1	160'-0''	(7) #6 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		41					
152-07 [6] #7 CR75 BARS @ 6" SPA. C/C, EF. 39 [7] #7 CR75 BARS @ 6" SPA. C/C, EF. 38 [8] #7 CR75 BARS @ 6" SPA. C/C, EF. 36 [8] #7 CR75 BARS @ 6" SPA. C/C, EF. 34 [12] 20 0" [9] #7 CR75 BARS @ 6" SPA. C/C, EF. 34 [12] 20 0" [9] #7 CR75 BARS @ 6" SPA. C/C, EF. 34 [12] 20 0" [9] #7 CR75 BARS @ 6" SPA. C/C, EF. 34 [12] 20 0" [9] #8 CR75 BARS @ 6" SPA. C/C, EF. 33 [12] 20 0" [9] #8 CR75 BARS @ 6" SPA. C/C, EF. 33 [12] 20 0" [1] #8 CR75 BARS @ 6" SPA. C/C, EF. 33 [12] 20 0" [1] #8 CR75 BARS @ 6" SPA. C/C, EF. 33 [12] 20 0" [1] #8 CR75 BARS @ 6" SPA. C/C, EF. 32 [1] 12 0" [1] #8 CR75 BARS @ 6" SPA. C/C, EF. 32 [1] 19 0" [1] #8 CR75 BARS @ 6" SPA. C/C, EF. 24 [1] 19 0" [1] #8 CR75 BARS @ 5 3/# SPA. C/C, EF. 24 [1] 19 8 CR75 BARS @ 5 3/# SPA. C/C, EF. 22 22 [1] 19 8 CR75 BARS @ 5 3/# SPA. C/C, EF. 22 22 [1] 19 8 CR75 BARS @ 6" SPA. C/C, EF. 117 [1] 19 8 CR75 BARS @ 6" SPA. C/C, EF. 12		(6) #7 GR75 BARS @ 8" SPA. C/C, E.F.		40					
[1] 17 / G K73 BAKS & 6 / 78" SPA. C/C. E.F. 33 [1] 47 C K73 BAKS & 6 / 78" SPA. C/C. E.F. 37 [1] 40 - 07 [7] 17 C K73 BAKS & 6 / 78" SPA. C/C. E.F. 37 [1] 17 C K73 BAKS & 6 / 78" SPA. C/C. E.F. 37 [1] 18 / 7 C K73 BAKS & 6 / 78" SPA. C/C. E.F. 31 [1] 17 C K73 BAKS & 6 / 78" SPA. C/C. E.F. 31 [1] 12 - 07 [7] 18 G K73 BAKS & 6 / 78" SPA. C/C. E.F. 31 [1] 12 - 07 [7] 18 G K73 BAKS & 6 / 78" SPA. C/C. E.F. 31 [1] 12 - 07 [7] 18 G K73 BAKS & 6 / 78" SPA. C/C. E.F. 31 [1] 12 - 07 [7] 18 G K73 BAKS & 6 / 78" SPA. C/C. E.F. 31 [1] 12 - 07 [7] 18 G K73 BAKS & 6 / SPA. C/C. E.F. 31 [1] 12 - 07 [7] 18 G K73 BAKS & 6 / SPA. C/C. E.F. 31 [1] 12 - 07 [9] 18 G K73 BAKS & 6 / SPA. C/C. E.F. 32 [1] 12 - 07 [9] 18 G K73 BAKS & 6 / SPA. C/C. E.F. 32 [9] 18 G K73 BAKS & 6 / SPA. C/C. E.F. 32 [9] 18 G K73 BAKS & 5 //8" SPA. C/C. E.F. 32 [9] 18 G K73 BAKS & 6 / SPA. C/C. E.F. 31 [9] 18 G K73 BAKS & 6 / SPA. C/C. E.F. 31 [9] 18 G K73 BAKS & 6 / SPA. C/C. E.F. 12	152'-0''	(6) #7 GR75 BARS @ 8" SPA. C/C, E.F.		39					
[7] 47 GR75 BARS @ 67/8 SPA. C/C. E.F. 37 140-0" (7) 47 GR75 BARS @ 67SPA. C/C. E.F. 36 (8) 47 GR75 BARS @ 67SPA. C/C. E.F. 34 128-0" (8) 47 GR75 BARS @ 67SPA. C/C. E.F. 34 (7) 48 GR75 BARS @ 67SPA. C/C. E.F. 33 1122-0" (7) 48 GR75 BARS @ 67SPA. C/C. E.F. 33 (7) 48 GR75 BARS @ 67SPA. C/C. E.F. 31 (7) 48 GR75 BARS @ 67SPA. C/C. E.F. 31 (7) 48 GR75 BARS @ 67SPA. C/C. E.F. 30 (8) 47 GR75 BARS @ 67SPA. C/C. E.F. 31 (9) 48 GR75 BARS @ 67SPA. C/C. E.F. 22 (9) 48 GR75 BARS @ 67SPA. C/C. E.F. 22 (9) 48 GR75 BARS @ 53/8 SPA. C/C. E.F. 22 (9) 48 GR75 BARS @ 53/8 SPA. C/C. E.F. 22 (9) 48 GR75 BARS @ 53/8 SPA. C/C. E.F. 21 (9) 48 GR75 BARS @ 53/8 SPA. C/C. E.F. 21 (9) 48 GR75 BARS @ 53/8 SPA. C/C. E.F. 21 (9) 48 GR75 BARS @ 53/8 SPA. C/C. E.F. 21 (9) 48 GR75 BARS @ 53/8 SPA. C/C. E.F. 112 (9) 48 GR75 BARS @ 53/8 SPA. C/C. E.F. 112 (9) 48 GR75 BARS @ 53/8 SPA. C/C. E.F. 114 (8) 49 GR75 BARS @ 53/8 SPA. C/C. E.F. 116		(7) #7 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		38					
1 40-07 [7] 47 GR25 BARS @ 479A. C/C, E.F. 36 (8) #7 GR25 BARS @ 479A. C/C, E.F. (5) 35 1 28-07 [8] #7 GR25 BARS @ 479A. C/C, E.F. 33 (7) 48 GR25 BARS @ 47/8 SPA. C/C, E.F. 33 (7) 48 GR25 BARS @ 47/8 SPA. C/C, E.F. 33 (7) 48 GR25 BARS @ 47/8 SPA. C/C, E.F. 31 (7) 48 GR25 BARS @ 47/8 SPA. C/C, E.F. 31 (7) 48 GR25 BARS @ 47/8 SPA. C/C, E.F. 30 (7) 48 GR25 BARS @ 47/8 SPA. C/C, E.F. 30 (7) 48 GR25 BARS @ 47/8 SPA. C/C, E.F. 30 (8) 48 GR25 BARS @ 45 SPA. C/C, E.F. 24 (9) 48 GR25 BARS @ 45 SPA. C/C, E.F. 24 (9) 48 GR25 BARS @ 5 SPA. C/C, E.F. 22 (9) 48 GR25 BARS @ 5 SPA. C/C, E.F. 22 (9) 48 GR25 BARS @ 5 SPA. C/C, E.F. 24 (9) 48 GR25 BARS @ 5 SPA. C/C, E.F. 21 (9) 48 GR25 BARS @ 5 SPA. C/C, E.F. 112 (9) 48 GR25 BARS @ 5 SPA. C/C, E.F. 124 (9) 49 GR25 BARS @ 5 SPA. C/C, E.F. 124 (9) 49 GR25 BARS @ 5 SPA. C/C, E.F. 116 (8) 49 GR25 BARS @ 5 SPA. C/C, E.F. 117 (8) 49 GR25 BARS @ 5 SPA. C/C, E.F. 118 <tr< td=""><td></td><td>(7) #7 GR75 BARS @ 6 7/8" SPA. C/C, E.F.</td><td></td><td>37</td><td></td><td></td><td></td><td></td><td></td></tr<>		(7) #7 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		37					
(8) #7 GR75 BARS @ 6 'SPA. C/C, E.F. (b) 35 (9) #7 GR75 BARS @ 6 'SPA. C/C, E.F. 33 (7) #8 GR75 BARS @ 6 'SPA. C/C, E.F. 31 (7) #8 GR75 BARS @ 6 //8' SPA. C/C, E.F. 31 (7) #8 GR75 BARS @ 6 //8' SPA. C/C, E.F. 31 (7) #8 GR75 BARS @ 6 //8' SPA. C/C, E.F. 31 (7) #8 GR75 BARS @ 6 //8' SPA. C/C, E.F. 31 (7) #8 GR75 BARS @ 6 //8' SPA. C/C, E.F. 31 (8) #8 GR75 BARS @ 6 'SPA. C/C, E.F. (C) (8) #8 GR75 BARS @ 6 'SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 6 'SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 5 J/8' SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 5 J/8' SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 5 J/8' SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 5 J/8' SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 5 J/8' SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 5 J/8' SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 5 J/8' SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 6 'SPA. C/C, E.F. (C) (9) #8 GR75 BARS @ 6 'SPA. C/C, E.F. (D) (10) #9 GR75 BARS @ 6 'SPA. C/C, E.F. (D) (11) 48 GR75 BARS @ 6 'SPA. C/C, E.F. (D)	140'-0''	(7) #7 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		36					
[8] #7 GR75 BARS @ 6' SPA. C/C, E.F. 34 [128-0" [8] #7 GR75 BARS @ 6' SPA. C/C, E.F. 32 [7] #8 GR75 BARS @ 6' SPA. C/C, E.F. 31 [7] #8 GR75 BARS @ 6' SPA. C/C, E.F. 30 [7] #8 GR75 BARS @ 6' SPA. C/C, E.F. 30 [8] #8 GR75 BARS @ 6' SPA. C/C, E.F. 30 [9] #8 GR75 BARS @ 6' SPA. C/C, E.F. 20 [8] #8 GR75 BARS @ 6' SPA. C/C, E.F. 27 [9] #8 GR75 BARS @ 6' SPA. C/C, E.F. 22 [9] #8 GR75 BARS @ 6' SPA. C/C, E.F. 22 [9] #8 GR75 BARS @ 6' SPA. C/C, E.F. 22 [9] #8 GR75 BARS @ 6' SPA. C/C, E.F. 22 [9] #8 GR75 BARS @ 5' SPA. C/C, E.F. 22 [9] #8 GR75 BARS @ 5' SPA. C/C, E.F. 22 [9] #8 GR75 BARS @ 5' SPA. C/C, E.F. 21 [9] #8 GR75 BARS @ 5' SPA. C/C, E.F. 21 [9] #8 GR75 BARS @ 5' SPA. C/C, E.F. 10 [8] #9 GR75 BARS @ 5' SPA. C/C, E.F. 11 [9] #8 GR75 BARS @ 6' SPA. C/C, E.F. 12 [9] #8 GR75 BARS @ 6' SPA. C/C, E.F. 13 [8] #9 GR75 BARS @ 6' SPA. C/C, E.F. 14 [8] #9 GR75 BARS @ 6' SPA. C/C, E.F. 12 [9] #9 GR75 BARS @ 6' SPA. C/C, E.		(8) #7 GR75 BARS @ 6" SPA. C/C, E.F.	$\langle \hat{D} \rangle$	35					
128-07 (8) #7 GR75 BARS © 6' SPA. C/C, E.F. 33 (7) #8 GR75 BARS © 6' SPA. C/C, E.F. 32 (7) #8 GR75 BARS © 6' SPA. C/C, E.F. 31 (7) #8 GR75 BARS © 6' SPA. C/C, E.F. 31 (7) #8 GR75 BARS © 6' SPA. C/C, E.F. 30 (7) #8 GR75 BARS © 6' SPA. C/C, E.F. 30 (8) #8 GR75 BARS © 6' SPA. C/C, E.F. 30 (8) #8 GR75 BARS © 6' SPA. C/C, E.F. 32 (9) #8 GR75 BARS © 6' SPA. C/C, E.F. 24 (9) #8 GR75 BARS © 5' SPA. C/C, E.F. 224 (9) #8 GR75 BARS © 5' SPA. C/C, E.F. 224 (9) #8 GR75 BARS © 5' SPA. C/C, E.F. 224 (9) #8 GR75 BARS © 5' SPA. C/C, E.F. 224 (9) #8 GR75 BARS © 5' SPA. C/C, E.F. 224 (9) #8 GR75 BARS © 5' SPA. C/C, E.F. 21 (9) #8 GR75 BARS © 5' SPA. C/C, E.F. 17 (8) #9 GR75 BARS © 5' SPA. C/C, E.F. 17 (8) #9 GR75 BARS © 6' SPA. C/C, E.F. 16 (8) #9 GR75 BARS © 6' SPA. C/C, E.F. 16 (8) #9 GR75 BARS © 6' SPA. C/C, E.F. 17 (8) #9 GR75 BARS © 6' SPA. C/C, E.F. 16 (9) #9 GR75 BARS © 6' SPA. C/C, E.F. 17 (8) #9 GR75 BARS © 6' SPA. C/C		(8) #7 GR75 BARS @ 6" SPA. C/C, E.F.		34	- d				
(7) #8 GR75 BARS @ 6 7/6" SPA. C/C, E.F. 32 (7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F. 31 (7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F. 31 (7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F. 32 (8) #8 GR75 BARS @ 6 'SPA. C/C, E.F. 32 (9) #8 GR75 BARS @ 6' SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 6' SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 6' SPA. C/C, E.F. 24 (9) #8 GR75 BARS @ 6' SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 11 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 12 (9) #8 GR75 BARS @ 6' SPA. C/C, E.F. 13 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 14 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 10 (9) #9 GR75 BARS @ 6' SPA. C/C, E.F. 11 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 12 (9) #9 GR75 B	128'-0''	(8) #7 GR75 BARS @ 6" SPA. C/C, E.F.		33	NUL				
(7) #8 GR75 BARS @ 6 7/6" SPA. C/C, E.F. 31 (7) #8 GR75 BARS @ 6 7/6" SPA. C/C, E.F. 30 (112-0" (7) #8 GR75 BARS @ 6 SPA. C/C, E.F. 30 (8) #8 GR75 BARS @ 6 SPA. C/C, E.F. 32 (8) #8 GR75 BARS @ 6 SPA. C/C, E.F. 32 (9) #8 GR75 BARS @ 6 SPA. C/C, E.F. 4x(1) 26 (9) #8 GR75 BARS @ 6 SPA. C/C, E.F. 225 92.0" (8) #8 GR75 BARS @ 6 SPA. C/C, E.F. 224 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 10 (9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F. 10 (9) #8 GR75 BARS @ 6 SPA. C/C, E.F. 12 (9) #8 GR75 BARS @ 6 SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6 SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6 SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6 SPA. C/C, E.F. 1		(7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		32	1 日				
(7) #8 GR75 BARS @ 6 7/8' SPA. C/C, E.F. 30 00 112*.0" (7) #8 GR75 BARS @ 6 7/8' SPA. C/C, E.F. (6) 29 (8) #8 GR75 BARS @ 6 'SPA. C/C, E.F. (6) 29 (8) #8 GR75 BARS @ 6 'SPA. C/C, E.F. (7) 26 (9) #8 GR75 BARS @ 6 'SPA. C/C, E.F. 225 (9) #8 GR75 BARS @ 5 3/8' SPA. C/C, E.F. 224 (9) #8 GR75 BARS @ 5 3/8' SPA. C/C, E.F. 224 (9) #8 GR75 BARS @ 5 3/8' SPA. C/C, E.F. 224 (9) #8 GR75 BARS @ 5 3/8' SPA. C/C, E.F. 224 (9) #8 GR75 BARS @ 5 3/8' SPA. C/C, E.F. 226 (9) #8 GR75 BARS @ 5 3/8' SPA. C/C, E.F. 226 (9) #8 GR75 BARS @ 5 3/8' SPA. C/C, E.F. 20 (9) #8 GR75 BARS @ 5 3/8' SPA. C/C, E.F. 10 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 11 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 12 (9) #8 GR75 BARS @ 6' SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6' SPA. C/C, E.F. 12 (9) #9 GR75 BARS @ 6' SPA. C/C, E.F. 10 ((7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		31	CRE'				
112-0" (7) #8 GR75 BARS @ 6 7/8 SPA. C/C, E.F. (G) 29 (8) #8 GR75 BARS @ 6 'SPA. C/C, E.F. (G) 28 (8) #8 GR75 BARS @ 6 'SPA. C/C, E.F. 27 (8) #8 GR75 BARS @ 6 'SPA. C/C, E.F. 27 (9) #8 GR75 BARS @ 6 'SPA. C/C, E.F. 24 (9) #8 GR75 BARS @ 5 SPA. C/C, E.F. 24 (9) #8 GR75 BARS @ 5 SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 SPA. C/C, E.F. 22 (9) #8 GR75 BARS @ 5 SPA. C/C, E.F. 21 (9) #8 GR75 BARS @ 5 SPA. C/C, E.F. 21 (9) #8 GR75 BARS @ 5 SPA. C/C, E.F. 10 (8) #9 GR75 BARS @ 5 SPA. C/C, E.F. 11 (8) #9 GR75 BARS @ 6'SPA. C/C, E.F. 11 (8) #9 GR75 BARS @ 6'SPA. C/C, E.F. 11 (8) #9 GR75 BARS @ 6'SPA. C/C, E.F. 12 (9) #9 GR75 BARS @ 6'SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6'SPA. C/C, E.F. 12 (9) #9 GR75 BARS @ 6'SPA. C/C, E.F. 10 (8) #9 GR75 BARS @ 6'SPA. C/C, E.F. 10 (9) #9 GR75		(7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		30	NO				
101 (B) #8 GR75 BARS @ 6'SPA. C/C, E.F. (C) 28 (B) #8 GR75 BARS @ 6'SPA. C/C, E.F. 27 (B) #8 GR75 BARS @ 6'SPA. C/C, E.F. 27 (B) #8 GR75 BARS @ 6'SPA. C/C, E.F. 24 (P) #8 GR75 BARS @ 6'SPA. C/C, E.F. 24 (P) #8 GR75 BARS @ 53/8'SPA. C/C, E.F. 24 (P) #8 GR75 BARS @ 53/8'SPA. C/C, E.F. 21 (P) #8 GR75 BARS @ 53/8'SPA. C/C, E.F. 21 (P) #8 GR75 BARS @ 53/8'SPA. C/C, E.F. 21 (P) #8 GR75 BARS @ 53/8'SPA. C/C, E.F. 21 (P) #8 GR75 BARS @ 53/8'SPA. C/C, E.F. 21 (P) #8 GR75 BARS @ 6'SPA. C/C, E.F. 18 (B) #9 GR75 BARS @ 6'SPA. C/C, E.F. 18 (B) #9 GR75 BARS @ 6'SPA. C/C, E.F. 13 (B) #9 GR75 BARS @ 6'SPA. C/C, E.F. 13 (B) #9 GR75 BARS @ 6'SPA. C/C, E.F. 13 (B) #9 GR75 BARS @ 6'SPA. C/C, E.F. 13 (B) #9 GR75 BARS @ 6'SPA. C/C, E.F. 11 (B) #9 GR75 BARS @ 6'SPA. C/C, E.F. 12 (B) #9 GR75 BARS @ 6'SPA. C/C, E.F. 11 (B) #9 GR75 BARS @ 6'SPA. C/C, E.F. 10 (B) #9 GR75 BARS @ 53/8'SPA. C/C, E.F. 10 (P) #9 GR75 BARS @ 5	112'-0"	(7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F.	Ĝ	29	Ŭ				
Image: Second		(8) #8 GR75 BARS @ 6" SPA. C/C, E.F.		28	S O				
Image: Constraint of the		(8) #8 GR75 BARS @ 6" SPA. C/C, E.F.		27	ARD				
(8) #8 GR75 BARS @ 6" SPA. C/C, E.F. 225 92'-0" (8) #8 GR75 BARS @ 6" SPA. C/C, E.F. 24 (9) #8 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 221 (9) #8 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 220 (9) #8 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 220 (9) #8 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 19 (8) #9 GR75 BARS @ 6" SPA. C/C, E.F. 11 (8) #9 GR75 BARS @ 6" SPA. C/C, E.F. 16 (8) #9 GR75 BARS @ 6" SPA. C/C, E.F. 16 (8) #9 GR75 BARS @ 6" SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6" SPA. C/C, E.F. 13 (8) #9 GR75 BARS @ 6" SPA. C/C, E.F. 12 (8) #9 GR75 BARS @ 6" SPA. C/C, E.F. 10 (8) #9 GR75 BARS @ 6" SPA. C/C, E.F. 10 (8) #9 GR75 BARS @ 6" SPA. C/C, E.F. 10 (9) #9 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 10 (9) #9 GR75 BARS @ 5 3/6" SPA. C/C, E.F. 10 <t< td=""><td></td><td>(8) #8 GR75 BARS @ 6" SPA. C/C, E.F.</td><td>4X(L)</td><td>26</td><td>35 Υ,</td><td></td><td></td><td></td><td></td></t<>		(8) #8 GR75 BARS @ 6" SPA. C/C, E.F.	4X(L)	26	35 Υ,				
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8'-0'' (9) #9 GR75 BARS @ 5 3/8'' SPA. C/C, E.F. C 3 9 9 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 7 0 0 7 0 0 7 0 <th7< th=""> 7 0 7 <th< td=""><td></td><td>(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.</td><td></td><td></td><td>YAR</td><td></td><td></td><td></td><td></td></th<></th7<>		(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.			YAR				
(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F. A B C 8X H 2 0'-0" (9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F. (A) B 1	8'-0''	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.		3	9.5 NCI		¶	SIS	
0'-0'' (9) #9 GR75 BARS @ 5 3/8'' SPA. C/C, E.F. (A) (B) 1		(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.		2	T 0 7				
	0'-0''	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	$\langle A \rangle \langle B \rangle$	1	1				

NOTE:

INSIDE VERTICALS MATCH OUTSIDE VERTICALS SPACING. SPLICE INSIDE & OUTSIDE VERTICALS AT SAME LOCATION.

HORIZONT	AL HOOP
LAP SC	HEDULE
BAR	LAP
SIZE	LENGTH
#4	26"
#5	30"
#6 GR75	43"
#7 GR75	59"
#8 GR75	67"
#9 GR75	81"

HORIZONIAL HOOP MAKE-UP	QUANIIIY
#4 HOOP (7) RADIUSED #4 X 40'-0"	154
(1) RADIUSED #4 X 25'-6"	22
#5 HOOP (7) RADIUSED #5 X 40'-0"	210
(1) RADIUSED #5 X 28'-6"	30
#6 HOOP (7) GR75 RADIUSED #6 X 40'-0"	406
(1) GR75 RADIUSED #6 X 36'-9"	58
#7 HOOP (7) GR75 RADIUSED #7 X 40'-0"	798
(2) GR75 RADIUSED #7 X 26'-3"	228
#8 HOOP (7) GR75 RADIUSED #8 X 40'-0"	1708
(2) GR75 RADIUSED #8 X 29'-3"	488
#9 HOOP (8) GR75 RADIUSED #9 X 40'-0"	2304
(1) GR75 RADIUSED #9 X 30'-0"	288
#5 VERTICALS #5 X 10'-0"	9216
#5 VERTICALS #5 X 7'-10"	192
#4 VERTICALS #4 X 10'-0"	192

EXTRA BARS FOR OPENING & EMBEDS (SEE DETAILS ON H.I. DWG 661-1-05)

QTY	DESCRIPTION	LENGTH	STRAIGHT / RADIUSED
224	#3 BAR	4'-0"	STRAIGHT
8	#3 BAR	8'-0"	STRAIGHT
120	#4 BAR	4'-0"	STRAIGHT
48	#5 BAR	10'-0"	STRAIGHT
24	#5 BAR	12'-0"	STRAIGHT
12	#6 BAR	8'-0"	STRAIGHT
40	#6 BAR	12'-0"	STRAIGHT
128	#6 BAR	16'-0"	STRAIGHT
48	#6 BAR	20'-0"	STRAIGHT
12	#7 BAR	15'-0"	RAD.@45'-6"
12	#8 BAR	15'-0"	RAD.@45'-6"
48	#9 BAR	15'-0"	RAD.@45'-6"
16	#9 BAR	18'-0"	RAD.@45'-6"
16	#9 BAR	20'-0"	RAD.@45'-6"
106	#9 BAR	40'-0"	RAD.@45'-6"
674	#3 BAR	1'-9"	6"X9"BENT U

LAP NOTES: 1.) "LAP LENGTH" IS THE MINIMUM LAP SPLICE LENGTH.

2.) SPECIFIED BAR LENGTHS MAY RES	SULT IN EXTRA LAP LENGTH AT SOME PLACES.

			UNILLUS NOTLD	OTTERV
FIELD \	/ERIFY ALL	OPENING L	OCATIONS.	

ž	WALL OPENING SCHEDULE								
OPENING SYMBOL	G OPENING MARK	QTY	DESCRIPTION	NOTES					
Â	(661-TOW)	1	7'-0''W x 6'-0''H TUNNEL OPENING - WEST	SEE DETAIL 5 ON H.I. DWG. 661-1-05					
B	661-TOE	1	7'-0''W x 6'-0''H TUNNEL OPENING - EAST	SEE DETAIL 4 ON H.I. DWG. 661-1-05					
$\langle \widehat{C} \rangle$	661-BCF	1	8'-6''W x 9'-2''H BOBCAT DOOR FRAME	SEE DETAIL 4 ON H.I. DWG. 661-1-05					
$\langle D \rangle$	661-RP1	2	24" SQ. P&P OPENING @ 12" WALL	SEE DETAIL 7 & DETAIL 9 ON H.I. DWG. 661-1-05					
Ê	(661-MW)	2	36" SQ. SLATTED MANWAY	SEE DETAIL 4 & DETAIL 5 ON H.I. DWG. 661-1-05					
(F)	661-RP2	1	18" SQ. R&P OPENING @ 14" WALL	SEE DETAIL 6 ON H.I. DWG. 661-1-05					
Ĝ	661-RP4	1	24"SQ R&P OPENING W/CLOSURE PL @ 12" WALL	SEE DETAIL 8 ON H.I. DWG. 661-1-05					
Ĥ	(661-AO)	8	AERATION OPENING	SEE DETAIL 4 & DETAIL 5 ON H.I. DWG. 661-1-05					
K	661-WEP2	4	12" SQ. CONVEYOR WALL EMBED	SEE H.I. DWG. 661-1-07					
$\langle L \rangle$	661-WEP3	6	18" SQ. WALL EMBED	SEE DETAIL 8 ON H.I. DWG. 661-1-05					
Ŵ	661-JP1	12	1'-2 ³ ₁₆ ''W x 7 ¹ ₂ ''H JOIST POCKET	SEE H.I. DWG. 661-1-06 & 661-1-07					
	(661-JP2)	12	1'-8 ¹ / ₂ ''W x 7 ¹ / ₂ ''H JOIST POCKET	SEE H.I. DWG. 661-1-06 & 661-1-07					
P	(661-JP3)	4	2'-0 ³ ₁₆ ''W x 7 ¹ ₂ ''H JOIST POCKET	SEE H.I. DWG. 661-1-06 & 661-1-07					
$\langle \hat{Q} \rangle$	(661-JP4)	2	1'-1"W x 7 ¹ / ₂ "H JOIST POCKET	SEE H.I. DWG. 661-1-06 & 661-1-07					
$\langle \hat{R} \rangle$	661-JP5	2	1'-1"W x 7 ¹ / ₂ "H JOIST POCKET	SEE H.I. DWG. 661-1-06 & 661-1-07					
Ś	(661-JP6)	2	1'-1"W x 7 ¹ / ₂ "H JOIST POCKET	SEE H.I. DWG. 661-1-06 & 661-1-07					
(1)	661-JP7	2	1'-1"W x $7\frac{1}{2}$ "H JOIST POCKET	SEE H.I. DWG. 661-1-06 & 661-1-07					

DWG NO.: 661-1-04

REV: 5

SHEET NO .: 1 OF 1

ROOF JOIST SCHEDULE - DOUBLE PITCHED @ 3/16" PER FT.									
JOIST	QTY.	NOMINAL INSIDE DIA.	SIZE	JOIST POCKET	JOIST POCKET ELEVATION	CHORD TO JOIST C.L.	JOIST WEIGHT (LBS)	ESTIMATED T.O. CONCRETE @ PEAK OF JOIST	
661-J1	2	89'-10 1/2"	68DLH18	661-JP1	199'-4 1/2"	2'-4 1/2"	5482	201'-4 2/16"	
661-J2	2	88'-10 3/8"	68DLH18	661-JP1	199'-4 1/2"	7'-1 1/2"	5421	201'-4"	
661-J3	2	86'-9 3/4"	68DLH18	661-JP1	199'-4 1/2"	11'-10 1/2"	5295	201'-3 12/16"	
661-J4	2	83'-7 5/8"	64DLH18	661-JP2	199'-4 1/2"	16'-7 1/2"	4934	201'-3 5/16"	
661-J5	2	79'-2 3/8"	64DLH17	661-JP2	199'-4 1/2"	21'-4 1/2"	4118	201'-2 11/16"	
661-J6	2	73'-3 3/8"	48LH17	661-JP2	199'-4 1/2"	26'-1 1/2"	3444	201'-1 9/16"	
661-J7	2	65'-5 5/8"	48LH16	661-JP3	199'-4 1/2"	30'-10 1/2"	2750	201'-0 11/16"	
661–J8	2	54'-11 3/4"	36LH14	661-JP4/JP5	199'-4 1/2"	35'-7 1/2"	1980	200'-11 5/16"	
661-J9	1	39'-8 7/8"	36LH12	661-JP6/JP7	199'-4 1/2"	40'-4 1/2"	994	200'-9 10/16"	
661-J10	1	39'-8 7/8"	36LH14	661-JP6/JP7	199'-4 1/2"	40'-4 1/2"	1431	200'-9 10/16"	
VULCRAFT MARK # TOP OF BEARING PL. CHORD DISTANCE FROM N-S & AT O.F. OF WALL TO JOIST & AT O.F. OF WALL								N−S € AT O.F. 0.F. OF WALL	

ELEVATION	HOOP QTY., SIZE, & SPACING	JUMP OPENINGS	JUMP NO.) -	#/ @	4 VER1 2 18'' C	T. BARS x 10'-0" C/C O.F. BEND	
200'-0''			-				ROOF SLAB	
196'-0''	(6) #4 GR60 BARS @ 8" SPA. C/C, E.F.		50			ÌÌ	`	
192'-0''	(5) #4 GR60 BARS @ 9 5/8" SPA. C/C, E.F.		49				#5 VERT. BARS	HO FLE
188'-0''	(4) #5 GR60 BARS @ 12" SPA. C/C, E.F.	2X(L)	48				17 7/8" C/C I.F.	7
184'-0''	(5) #5 GR60 BARS @ 9 5/8" SPA. C/C, E.F.		47					JOIS
180'-0''	(6) #5 GR60 BARS @ 8" SPA. C/C, E.F.	2X(L)	46					
	(5) #6 GR75 BARS @ 9 5/8" SPA. C/C, E.F.		45					
172'-0''	(5) #6 GR75 BARS @ 9 5/8" SPA. C/C, E.F.	2X(L)	44					
	(6) #6 GR75 BARS @ 8" SPA. C/C, E.F.		43					
164'-0''	(6) #6 GR75 BARS @ 8" SPA. C/C, E.F.	2X(L)	42					
160'-0''	(7) #6 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		41					
	(6) #7 GR75 BARS @ 8" SPA. C/C, E.F.	2X(L)	40					
152'-0''	(6) #7 GR75 BARS @ 8" SPA. C/C, E.F.		39					
	(7) #7 GR75 BARS @ 6 7/8" SPA. C/C, E.F.	2X(L)	38					
	(7) #7 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		37					
140'-0''	(7) #7 GR75 BARS @ 6 7/8" SPA. C/C, E.F.	2X(L)	36					
	(8) #7 GR75 BARS @ 6" SPA. C/C, E.F.		35					
	(8) #7 GR75 BARS @ 6" SPA. C/C, E.F.	2X(L)	34	MP				
128'-0"	(8) #7 GR75 BARS @ 6" SPA. C/C, E.F.		33	nr /				
	(7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F.	2X(L)	32					
	(7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		31	Í CR				
	(7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F.	2X(L)	30	ģ				
112'-0"	(7) #8 GR75 BARS @ 6 7/8" SPA. C/C, E.F.		29	ЧЧ С Ч				
	(8) #8 GR75 BARS @ 6" SPA. C/C, E.F.		28	SOS				
	(8) #8 GR75 BARS @ 6" SPA. C/C, E.F.		27	YAR				HOFFMANN FLEVATION
	(8) #8 GR75 BARS @ 6" SPA. C/C, E.F.	4X(K) 2X(L)	26	.35				102'-4" T.O.
	(8) #8 GR75 BARS @ 6" SPA. C/C, E.F.		25	47				EMBED PL(S)
92'-0''	(8) #8 GR75 BARS @ 6" SPA. C/C, E.F.	2X(L)	24		Ц Ц			
	(9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	2X(K)	23		FAC	EA(
	(9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	2X(L)	22		DE	SIDE All-	L L	
	(9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F.		21		UTS			
	(9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	2X(L)	20					
	(9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F.		19		C .	"8/7 PSI	-	
68'-0''	(9) #8 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	2X(L)	18		18			
	(8) #9 GR75 BARS @ 6" SPA. C/C, E.F.		17		RS @	S N 200	t 	
	(8) #9 GR75 BARS @ 6" SPA. C/C, E.F.	2X(L)	16		. BA	BAF " TH	-	
	(8) #9 GR75 BARS @ 6" SPA. C/C, E.F.		15		ERT	ERT. 13	2	
	(8) #9 GR75 BARS @ 6" SPA. C/C, E.F.	2X(L)	14		±5 ∨	5 <f< td=""><td></td><td></td></f<>		
	(8) #9 GR75 BARS @ 6" SPA. C/C, E.F.		13			# 		
	(8) #9 GR75 BARS @ 6" SPA. C/C, E.F.		12					
	(8) #9 GR75 BARS @ 6" SPA. C/C, E.F.	<u>G</u>	11					
	(8) #9 GR75 BARS @ 6" SPA. C/C, E.F.	2X(L)	10					
32'-0''	(8) #9 GR75 BARS @ 6" SPA. C/C, E.F.		9				x	
	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	(F)2X(L)	8					
	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	$\left(\stackrel{\frown}{F} \right)$	7					
	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.		6			00	ALL	
	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	(C) 2X(J)	5	TE /		 .4 	≥	
	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	E 2X C 2X J 2X L	4	5 YA CRE			SILC	
8'-0''	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.		3	49. 0 N		1	PSI	
	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	$(\underline{A},\underline{B},\underline{C},\underline{8X},\underline{H},\underline{2X},\underline{L})$	2					
0'-0''	(9) #9 GR75 BARS @ 5 3/8" SPA. C/C, E.F.	$\langle A \rangle \langle B \rangle$	1				ς.	

NOTE:

INSIDE VERTICALS MATCH OUTSIDE VERTICALS SPACING. SPLICE INSIDE & OUTSIDE VERTICALS AT SAME LOCATION.

HORIZONT	AL HOOP
LAP SC	HEDULE
BAR	LAP
SIZE	LENGTH
#4	26"
#5	30"
#6 GR75	43"
#7 GR75	59"
#8 GR75	67"
#9 GR75	81"

HORIZONTAL HOOP MAKE-UP	QUANTITY
#4 HOOP (7) RADIUSED #4 X 40'-0"	154
(1) RADIUSED #4 X 25'-6"	22
#5 HOOP (7) RADIUSED #5 X 40'-0"	210
(1) RADIUSED #5 X 28'-6"	30
#6 HOOP (7) GR75 RADIUSED #6 X 40'-0"	406
(1) GR75 RADIUSED #6 X 36'-9"	58
#7 HOOP (7) GR75 RADIUSED #7 X 40'-0"	798
(2) GR75 RADIUSED #7 X 26'-3"	228
#8 HOOP (7) GR75 RADIUSED #8 X 40'-0"	1708
(2) GR75 RADIUSED #8 X 29'-3"	488
#9 HOOP (8) GR75 RADIUSED #9 X 40'-0"	2304
(1) GR75 RADIUSED #9 X 30'-0"	288
#5 VERTICALS #5 X 10'-0"	9216
#5 VERTICALS #5 X 7'-10"	192
#4 VERTICALS #4 X 10'-0"	192

EXTRA BARS FOR OPENING & EMBEDS

(SEE D	DETAILS ON	H.I. DWG 66	1-2-05)
QTY	DESC RIPTION	LENGTH	STRAIGHT/ RADIUSED
208	#3 bar	4'-0"	STRAIGHT
8	#3 bar	6'-0"	STRAIGHT
120	#4 BAR	4'-0"	STRAIGHT
48	#5 BAR	10'-0"	STRAIGHT
16	#5 BAR	12'-0"	STRAIGHT
12	#6 BAR	8'-0"	STRAIGHT
24	#6 BAR	12'-0"	STRAIGHT
128	#6 BAR	16'-0"	STRAIGHT
48	#6 BAR	20'-0"	STRAIGHT
12	#8 BAR	15'-0"	RAD.@45'-6"
48	#9 BAR	15'-0"	RAD.@45'-6"
16	#9 BAR	18'-0"	RAD.@45'-6"
16	#9 BAR	20'-0"	RAD.@45'-6"
106	#9 BAR	40'-0"	RAD.@45'-6"
674	#3 BAR	1'-9"	6"X9"BENT U

LAP NOTES:

1.) "LAP LENGTH" IS THE MINIMUM LAP SPLICE LENGTH. 2.) SPECIFIED BAR LENGTHS MAY RESULT IN EXTRA LAP LENGTH AT SOME PLACES.

			WALL OPENING SC	CHEDULE
OPENING SYMBOL	OPENING MARK	QTY	DESCRIPTION	NOTES
Â	661-TOW	1	7'-0''W x 6'-0''H TUNNEL OPENING - WEST	SEE DETAIL 5 ON H.I. DWG. 661-2-05
B	661-TOE	1	7'-0''W x 6'-0''H TUNNEL OPENING - EAST	SEE DETAIL 4 ON H.I. DWG. 661-2-05
$\langle \widehat{C} \rangle$	661-BCF	1	8'-6''W x 9'-2''H BOBCAT DOOR FRAME	SEE DETAIL 5 ON H.I. DWG. 661-2-05
$\langle D \rangle$	661-RP4	1	24"SQ R&P OPENING W/CLOSURE PL @ 12" WALL	SEE DETAIL 8 ON H.I. DWG. 661-2-05
Ê	661-MW	2	36" SQ. SLATTED MANWAY	SEE DETAIL 4 & DETAIL 5 ON H.I. DWG. 661-2-05
(F)	661-RP2	1	18" SQ. R&P OPENING @ 14" WALL	SEE DETAIL 6 ON H.I. DWG. 661-2-05
G	661-RP1	1	24" SQ. R&P OPENING @ 12" WALL	SEE DETAIL 7 ON H.I. DWG. 661-2-05
Ĥ	661-AO	8	AERATION OPENING	SEE DETAIL 4 & DETAIL 5 ON H.I. DWG. 661-2-05
$\langle \mathbf{L} \rangle$	661-WEP2	4	12" SQ. CONVEYOR WALL EMBED	
(K)	661-WEP3	6	18" SQ. WALL EMBED	SEE DETAIL 8 ON H.I. DWG. 661-2-05
$\langle L \rangle$	661-WEP1)	48	8" SQ. WALL EMBED	
Ŵ	(661-JP1)	12	1'-2 ³ / ₁₆ "W x 7 1/2"H JOIST POCKET	SEE H.I. DWG. 661-2-06 & 661-2-07
$\langle N \rangle$	661-JP2	12	1'-8 ¹ / ₂ "W x 7 1/2"H JOIST POCKET	SEE H.I. DWG. 661-2-06 & 661-2-07
$\langle \hat{P} \rangle$	661-JP3	4	2'-0 ³ / ₁₆ ''W x 7 1/2"H JOIST POCKET	SEE H.I. DWG. 661-2-06 & 661-2-07
$\langle \hat{Q} \rangle$	661-JP4	2	1'-1''W x 7 1/2"H JOIST POCKET	SEE H.I. DWG. 661-2-06 & 661-2-07
$\langle \hat{R} \rangle$	661-JP5	2	1'-1''W x 7 1/2"H JOIST POCKET	SEE H.I. DWG. 661-2-06 & 661-2-07
Ś	661-JP6	2	1'-1"W x 7 1/2"H JOIST POCKET	SEE H.I. DWG. 661-2-06 & 661-2-07
$\langle \hat{T} \rangle$	(661-JP7)	2	1'-1''W x 7 1/2''H JOIST POCKET	SEE H.I. DWG. 661-2-06 & 661-2-07

ROOF JOIST SCHEDULE - DOUBLE PITCHED @ 3/16" PER FT.									
JOIST	QTY.	NOMINAL INSIDE DIA.	SIZE	JOIST POCKET	JOIST POCKET ELEVATION	CHORD TO JOIST C.L.	JOIST WEIGHT (LBS)	ESTIMATED T.O. CONCRETE @ PEAK OF JOIST	
661-J1	2	89'-10 1/2"	68DLH18	661-JP1	199'-4 1/2"	2'-4 1/2"	5482	201'-4 2/16"	
661-J2	2	88'-10 3/8"	68DLH18	661-JP1	199'-4 1/2"	7'-1 1/2"	5421	201'-4"	
661-J3	2	86'-9 3/4"	68DLH18	661-JP1	199'-4 1/2"	11'-10 1/2"	5295	201'-3 12/16"	
661-J4	2	83'-7 5/8"	64DLH18	661-JP2	199'-4 1/2"	16'-7 1/2"	4934	201'-3 5/16"	
661-J5	2	79'-2 3/8"	64DLH17	661-JP2	199'-4 1/2"	21'-4 1/2"	4118	201'-2 11/16"	
661-J6	2	73'-3 3/8"	48LH17	661-JP2	199'-4 1/2"	26'-1 1/2"	3444	201'-1 9/16"	
661-J7	2	65'-5 5/8"	48LH16	661-JP3	199'-4 1/2"	30'-10 1/2"	2750	201'-0 11/16"	
661–J8	2	54'-11 3/4"	36LH14	661-JP4/JP5	199'-4 1/2"	35'-7 1/2"	1980	200'-11 5/16"	
661-J9	2	39'-8 7/8"	36LH12	661-JP6/JP7	199'-4 1/2"	40'-4 1/2"	994	200'-9 10/16"	
			A			A			

ROOF DECKING LAYOUT

N.T.S.

Е 90°

ROOF DECKING SCHEDULE						
MARK	QTY	LENGTH				
А	59	23'-9"				
В	14	9'-11"				
С	8	8'-10"				
D	4	7'-10"				
E	4	6'-10"				
F	6	29'-3"				
G	4	27'-8"				
Н	4	25'-9"				
J	4	21'-0"				
Κ	4	17'-9"				
L	4	13'-11"				

ROOF DECK MATERIAL: 1.5VL 22GA GALV *QTY SHOWN FOR (1) SILO, (2) SILOS REQ'D*

1

2

				G	HOF DESIGN B HOFFM		NN /ices ROUP	6001 49T MUSCATINE PH (563) 2 hoffmanni	H ST S , IA 52761 263–4733 nc.com
THIS	DRAWING IS TI	HE PROPERTY OF HOFFMANN, INC., AND IS TRANSMITTED	IN	CUSTOMER: HE. AV 282 SUI WE	ARTLAND CC 'ON 29 WESTOWN ITE 350 EST DES MOIN	DOP - I Parkwa' IES, IOWA	DESCRIPTION Y 50266	: (2) Ø90'-0'' I.I GRAIN STOR	d. x 200'-0" Age Silos
CON OF T WRIT	IFIDENCE. THE HE DESIGN OR TEN PERMISSIC	REPRODUCTION, USE, OR DISCLOSURE, IN WHOLE OR IN DETAILS CONTAINED HEREIN IS PROHIBITED WITHOUT THE IN OF HOFFMANN, INC.	PART,	DRAWING DES	CRIPTION: RC	DOF DECKI	NG LAYOUT		
NO.	DATE	REVISION	ΒY						
0	6/9/2023	ISSUED FOR CONSTRUCTION	NAR	DRAWN BY:	NAR	DATE:	6/8/2023	SCALE: A	S NOTED
				CHECKED BY:	DCM	DATE:	6/9/2023	PROPOSA	L NO.:
				APPROVED BY:	DCM	DATE:	6/9/2023	JOB NO.:	23-661
				DWG NO.:	661-RDL	SHEET N	NO.: 1 OF 1		REV: 0