

SITE PLAN

LOT 1, PARK PLACE CITY CENTER - PART 3

TIFFIN, JOHNSON COUNTY, IOWA

PLAT PREPARED BY:
MMS CONSULTANTS INC.
1917 S. GILBERT STREET
IOWA CITY, IA 52240

OWNER/APPLICANT:
JOHNSON COUNTY
913 S DUBUQUE ST
IOWA CITY, IA 52240

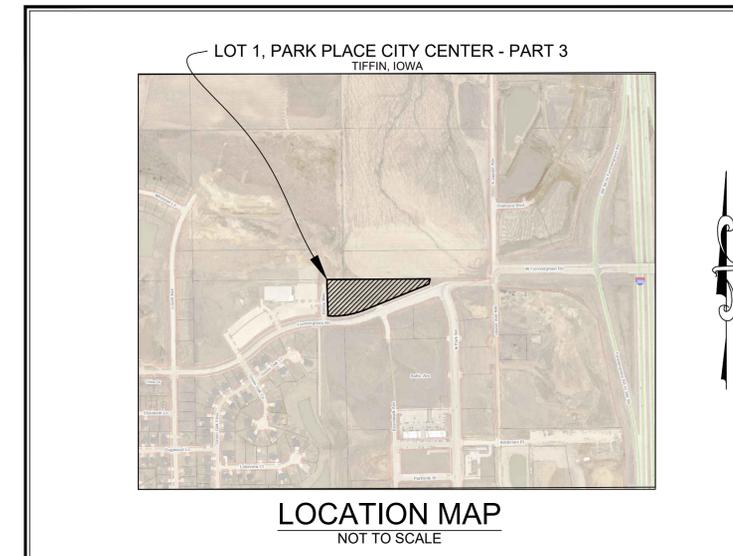
APPLICANT'S ATTORNEY

- C120 OVERALL SITE LAYOUT AND DIMENSION PLAN
- C140 OVERALL SITE GRADING AND EROSION CONTROL AND SWPPP
- C141 DETAILED SITE GRADING PLAN
- C160 SITE UTILITY PLAN
- C500 GENERAL NOTES AND DETAILS
- L100 SITE LANDSCAPE PLAN

PAVING LEGEND	
	PROPOSED 6" PCC PAVING OVER 6" GRANULAR BASE (17,255 SF) (PHASE 1)
	PROPOSED 4" PCC SIDEWALK (786 SF) (PHASE 1)
	PROPOSED 6" PCC PAVING OVER 6" GRANULAR BASE (16,055 SF) (PHASE 2)
	PROPOSED 4" PCC SIDEWALK (314 SF) (PHASE 2)

*SIZE OF PATTERN MAY VARY BASED ON SCALE OF SHEET.
*TOTALS LISTED ARE CALCULATED FOR THE ENTIRE SITE AREA

KEYNOTES	
NUMBER	KEYNOTE
101	INSTALL DRIVE/PARKING PER DETAIL ON SHEET C500 (THICKNESS AND MATERIAL AS NOTED)
102	INSTALL 6" CURB PER DETAIL ON SHEET C500
103	INSTALL P.C.C. SIDEWALK PER TIFFIN STANDARDS
104	GRIND EXISTING CURB AND GUTTER AT PROPOSED DRIVE LOCATION
105	INSTALL DUMPSTER ENCLOSURE, PROVIDE WEEP HOLE AT BASE OF SOUTH WALL (PHASE 2)
106	PUBLIC STREET AND UTILITY EXTENSION, BY OTHERS
107	5'x5' CONCRETE STOOP
108	7'x5' CONCRETE TRANSFORMER PAD
109	NO CURB.

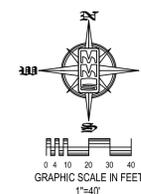


LEGAL DESCRIPTION
LOT 1, PARK PLACE CITY CENTER - PART THREE, TIFFIN, IOWA, ACCORDING TO THE PLAT THEREOF RECORDED IN BOOK 65, PAGE 337, PLAT RECORDS OF JOHNSON COUNTY, IOWA.

LOT CHARACTERISTICS:
UNDERLYING ZONING: C-1B (4.59 AC)
DEVELOPMENT CONSISTS OF 1 BUILDING TO BE USED AS SERVICE BAYS.(PUBLIC, EDUCATION & UTILITY USES)
SETBACK REQUIREMENTS FOR C-1B:
MINIMUM LOT AREA: N/A
MINIMUM LOT WIDTH: N/A
FRONT YARD SETBACK: 30 FT
INTERIOR SIDE YARD SETBACK: 15 FT
CORNER YARD SETBACK: 30 FT
REAR YARD SETBACK: 30 FT
FLOOR AREA RATIO: 0.4
MAXIMUM HEIGHT OF PRINCIPAL BUILDING: 35 FT
PARKING REQUIREMENTS:
PROVIDED PARKING:

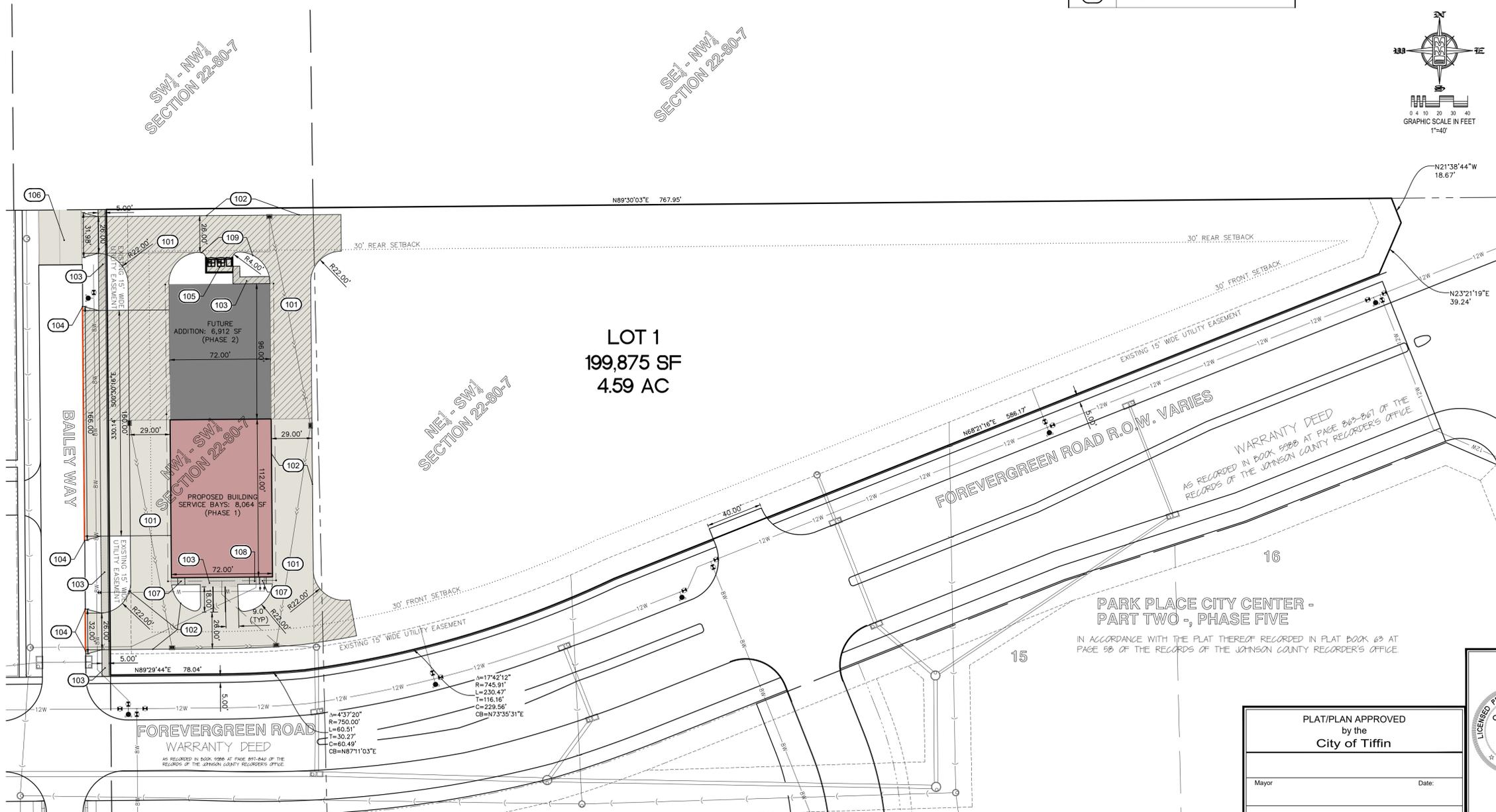
SITE AREA 199,875 SF (100%)
BUILDING AREA 14,976 SF (7.5%)
PAVING AREA 25,923 SF (13.0%)
GREEN SPACE 158,876 SF (79.5%)

THE DEVELOPED LOT IS LOCATED WITHIN FEMA ZONE X, AN AREA OF MINIMAL FLOOD HAZARD, AND IS LOCATED ABOVE THE 500 YEAR FLOOD EVENT ELEVATION



STANDARD LEGEND AND NOTES	
	PROPERTY &/or BOUNDARY LINES
	CONGRESSIONAL SECTION LINES
	RIGHT-OF-WAY LINES
	EXISTING RIGHT-OF-WAY LINES
	CENTER LINES
	EXISTING CENTER LINES
	LOT LINES, INTERNAL
	LOT LINES, PLATTED OR BY DEED
	PROPOSED EASEMENT LINES
	EXISTING EASEMENT LINES
	BENCHMARK
	RECORDED DIMENSIONS
	CURVE SEGMENT NUMBER

UTILITIES
THE CONTRACTOR SHALL NOTIFY IOWA ONE CALL AT 811 OR 800/292-8989 NO LESS THAN 48 HRS. IN ADVANCE OF ANY DIGGING OR EXCAVATION.
WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THEREOF. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.



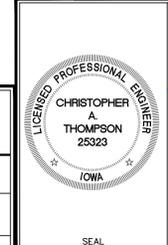
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01-09-2026	PHASING CHANGES - CAT
01-20-2026	PHASING CHANGES - CAT

DETAILED SITE LAYOUT AND DIMENSION PLAN

LOT 1, PARK PLACE CITY CENTER - PART 3
TIFFIN JOHNSON COUNTY IOWA

PLAT/PLAN APPROVED
by the
City of Tiffin

Mayor _____ Date: _____



I hereby certify that this engineering document was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.
CHRISTOPHER A. THOMPSON, P.E. Iowa Lic. No. 25323
My license renewal date is December 31, 2026.
Pages or sheets covered by this seal:
All sheets

MMS CONSULTANTS, INC.
Date: 01-22-2025
Designed by: CAT Field Book No:
Drawn by: ADP Scale: 1"=40'
Checked by: CAT Sheet No:
Project No: C120
0147-017 of 6



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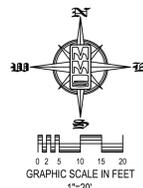
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EROSION CONTROL LEGEND

	SILT FENCE/FILTER SOCK		PERIMETER SILT FENCE
	LIMITS OF DISTURBED AREA		TEMPORARY SOIL STOCKPILE AREA
	TEMPORARY ROCK CONSTRUCTION ENTRANCE/EXIT		DIRECTION OF OVERLAND FLOW
	TEMPORARY PARKING AND STORAGE		DUMPSTER FOR CONSTRUCTION WASTE
	CONCRETE TRUCK/EQUIPMENT WASHOUT		RIP RAP OUTLET PROTECTION
	PORTABLE RESTROOM		OTHER MEASURE: _____
	DOCUMENT LOCATION (PERMITS, SWPPP, INSPECTION FORMS, ETC.)		OTHER MEASURE: _____
	FILTER SOCK INLET PROTECTION		OTHER MEASURE: _____
	FILTER SOCK BEHIND CURB AT CURB RAMP		
	EROSION CONTROL MATTING		

THE ABOVE LISTED ITEMS ARE SHOWN IN THEIR RECOMMENDED LOCATIONS. IF A CONTROL MEASURE IS ADDED OR MOVED TO A MORE SUITABLE LOCATION, INDICATE THE REVISION ON THIS SHEET. THE BLANKS LEFT FOR OTHER MEASURES SHOULD BE USED IF AN ITEM NOT SHOWN ABOVE IS IMPLEMENTED ON SITE. ADDITIONAL PRACTICES FOR EROSION PREVENTION AND SEDIMENT CONTROL CAN BE FOUND IN APPENDIX D OF THE SWPPP.

STABILIZATION SEEDING

STABILIZATION SEEDING SHALL BE IN ACCORDANCE WITH SUDAS SECTION 9010.2.02 SEED MIXTURES AND SEEDING DATES.

TABLE 9010.06: TYPE 4 SEED MIXTURE

COMMON NAME	APPLICATION RATE lb/acre
SPRING - MARCH 1 - MAY 20	
ANNUAL RYEGRASS	40
OATS*	65
SUMMER - MAY 21 - AUGUST 14	
ANNUAL RYEGRASS	50
OATS*	95
FALL - AUGUST 15 - SEPTEMBER 30	
ANNUAL RYEGRASS	40
GRAIN RYE	65

* ENGINEER MAY DELETE FOR PREVIOUSLY ESTABLISHED URBAN AREAS.
FERTILIZER SHALL BE APPLIED AT A RATE OF 300 LBS PER ACRE USING CHEMICALLY COMBINED COMMERCIAL 13-13-13 FERTILIZER (SUDAS SECTION 9010.2.03 A.2)

PERMANENT SEEDING OF URBAN AREAS

THE FOLLOWING SEED MIXTURE SHALL BE USED FOR PERMANENT SEEDING OF URBAN AREAS, INCLUDING ANY AREAS PREVIOUSLY MAINTAINED AS A LAWN. THE APPLICATION RATE SHALL BE 4 POUNDS PER 1,000 SQUARE FEET (2 kg per 100 m².)

BLUEGRASS, KENTUCKY	70%
RYEGRASS, PERENNIAL (FINELEAF VARIETY)	10%
FESCUE, CREEPING RED	20%

GRADING AND EROSION CONTROL NOTES

TOTAL SITE AREA: 4.59 ACRES
TOTAL AREA TO BE DISTURBED: 4.59 ACRES

EROSION CONTROL MEASURES SHOWN SHALL BE USED DURING FILL ACTIVITIES. EROSION CONTROL MEASURES SHALL BE REEVALUATED AND MODIFIED, IF NECESSARY, AT THE TIME OF SITE DEVELOPMENT.

ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES THAT COULD BE USED ON SITE, IF NEEDED, CAN BE FOUND IN APPENDIX D OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) BINDER PREPARED FOR THE SITE. IF ADDITIONAL MEASURES ARE USED, INDICATE THE TYPE AND LOCATION OF SAID MEASURE ON THIS PLAN.

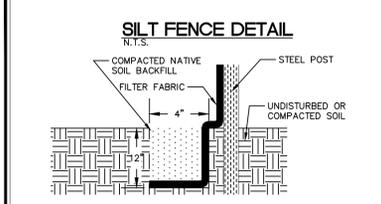
CONTRACTOR SHALL INSTALL A ROCK ENTRANCE AND PERFORM REGULAR CLEANING OF VEHICLES THAT LEAVE THE SITE.

FOLLOWING INSTALLATION OF PERIMETER SILT FENCE AND TEMPORARY CONSTRUCTION ENTRANCE THE CONTRACTOR SHALL CONTACT THE CITY INSPECTOR TO SCHEDULE A SITE INSPECTION PRIOR TO ANY SOIL DISTURBING ACTIVITIES.

THE CONTRACTOR SHALL FOLLOW THE NPDES PERMIT, SWPPP, AND THE CITY CSR REGULATIONS.

THE EROSION CONTROL CONTRACTOR SHALL INSTALL FILTER SOCKS OR OTHER APPROVED FORM OF INLET PROTECTION AT EACH STREET INTAKE ADJACENT TO THE SITE.

EROSION CONTROL MEASURES, INCLUDING, BUT NOT LIMITED TO, TEMPORARY ROCK CONSTRUCTION ENTRANCE, CONCRETE WASHOUT AND TEMPORARY PARKING ARE STORAGE AREAS, SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9040 SUDAS STANDARD SPECIFICATIONS.



- ### INSTALLATION
- POSTS SHALL BE 1.33 POUNDS PER LINEAL FOOT STEEL WITH A MINIMUM LENGTH OF 5 FEET. STEEL POSTS SHALL HAVE PROJECTIONS FOR FASTENING WIRE TO THEM.
 - SILT FENCE FABRIC SHALL CONFORM TO I.D.O.T. STANDARD SPECIFICATION SECTION 4186.01-A. SILT FENCING SHALL BE A MINIMUM OF 24" AND A MAXIMUM OF 36" HIGH WHEN COMPLETE.
 - THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE FENCE TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE NECESSARY, THE FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6" OVERLAP, AND SECURELY SEALED.
 - POSTS SHALL BE SPACED A MAXIMUM OF 8 FEET APART AND DRIVEN SECURELY INTO THE GROUND ALONG THE FENCE ALIGNMENT. POSTS SHALL BE DRIVEN INTO THE GROUND A MINIMUM OF 28".
 - A TRENCH SHALL BE EXCAVATED APPROXIMATELY 4" WIDE BY 12" DEEP ALONG THE UPSLOPE SIDE OF THE POSTS.
 - FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE POSTS SUCH THAT THE FABRIC EXTENDS INTO THE TRENCH AS SHOWN ABOVE. THE FABRIC SHALL BE FASTENED A MINIMUM OF THREE PLACES ON EACH POST.
 - THE TRENCH SHALL BE BACK FILLED WITH EXCAVATED MATERIAL AND THOROUGHLY COMPACTED.

- ### MAINTENANCE
- SILT FENCES SHALL BE INSPECTED WEEKLY AND AFTER EACH RAIN-FALL EVENT PRODUCING RUN-OFF. DURING PERIODS OF PROLONGED RAIN INSPECTIONS SHALL BE AT LEAST DAILY. ANY REPAIRS NEEDED TO MAINTAIN THE SILT FENCE'S EFFECTIVENESS SHALL BE MADE IMMEDIATELY.
 - SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO STABILIZING THE UPSLOPE AREAS THE FABRIC SHALL BE REPLACED PROMPTLY.
 - SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN THE DEPOSITS REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE FENCE. SILTS REMOVED SHALL BE PLACED IN A PROTECTED PLACE THAT WILL PREVENT THEIR ESCAPE FROM THE CONSTRUCTION SITE.
 - ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER NEEDED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.
 - SILT FENCE SHALL REMAIN IN PLACE UNTIL IT IS NO LONGER NEEDED AS DIRECTED BY THE POLLUTION PREVENTION PLAN. GENERALLY SILT FENCES SHALL REMAIN UNTIL THE UPSLOPE AREAS ARE STABILIZED WITH AN ESTABLISHED GRASS COVER AS A MINIMUM.

PERMANENT SEEDING OF URBAN AREAS

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GRADING NOTE

MASS GRADING HAS BEEN COMPLETED AND THE SITE IS NOW 12-INCH BELOW FINISH GRADE. BIDDING AS OF 12/4/2025 SHOULD INCLUDE FINISH GRADING AND TOPSOIL RE-SPREAD. THERE IS A STOCKPILE FOR TOPSOIL DIRECTLY ADJACENT TO THE SITE.

STANDARD LEGEND AND NOTES

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	EXISTING RIGHT-OF-WAY LINES
	CENTER LINES
	EXISTING CENTER LINES
	LOT LINES, INTERNAL
	LOT LINES, PLATTED OR BY DEED
	PROPOSED EASEMENT LINES
	EXISTING EASEMENT LINES
	BENCHMARK
	RECORDED DIMENSIONS
	CURVE SEGMENT NUMBER
	POWER POLE W/DROP
	POWER POLE W/TRANS
	POWER POLE W/LIGHT
	GUY POLE
	LIGHT POLE
	SANITARY MANHOLE
	FIRE HYDRANT
	WATER VALVE
	DRAINAGE MANHOLE
	CURB INLET
	FENCE LINE
	EXISTING SANITARY SEWER
	PROPOSED SANITARY SEWER
	EXISTING STORM SEWER
	PROPOSED STORM SEWER
	WATER LINES
	ELECTRICAL LINES
	TELEPHONE LINES
	CONTOUR LINES (1' INTERVAL)
	PROPOSED GROUND
	EXISTING GROUND
	EXISTING TREE LINE
	EXISTING DECIDUOUS TREE & SHRUB
	EXISTING EVERGREEN TREES & SHRUBS

THE ACTUAL SIZE AND LOCATION OF ALL PROPOSED FACILITIES SHALL BE VERIFIED WITH CONSTRUCTION DOCUMENTS, WHICH ARE TO BE PREPARED AND SUBMITTED SUBSEQUENT TO THE APPROVAL OF THIS DOCUMENT.

IOWA ONE CALL

SM

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OVERALL SITE GRADING EROSION CONTROL AND SWPPP

LOT 1,
PARK PLACE CITY
CENTER - PART 3
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JOHNSON COUNTY
IOWA

MMS CONSULTANTS, INC.

Date: 01-22-2025

Designed by: CAT Field Book No:

Drawn by: ADP Scale: 1"=20'

Checked by: CAT Sheet No:

Project No: C140

0147-017 of: 6

SITE PLAN

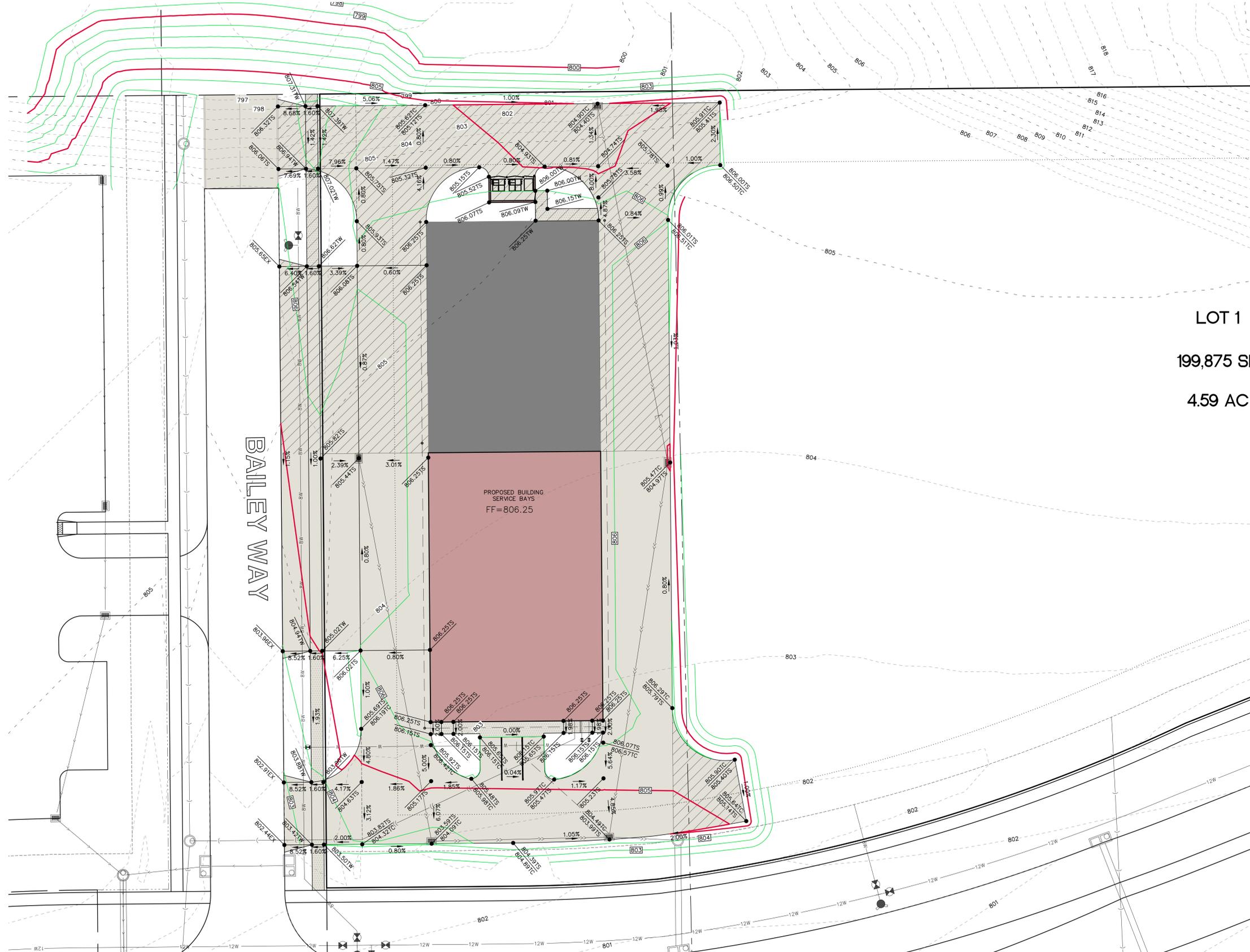
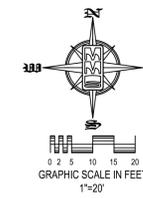
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•••••00EX	= EXISTING SURFACE
•••••00FC	= FINISH GRADE
•••••00TS	= TOP SLAB
•••••00TW	= TOP WALK
•••••00TC	= TOP CURB
•••••00TR	= TOP RIM
•••••00WT	= FG AT TOP WALL
•••••00WB	= FG AT BOTTOM WALL

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---	22-1
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DETAILED SITE GRADING PLAN

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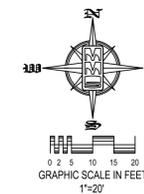
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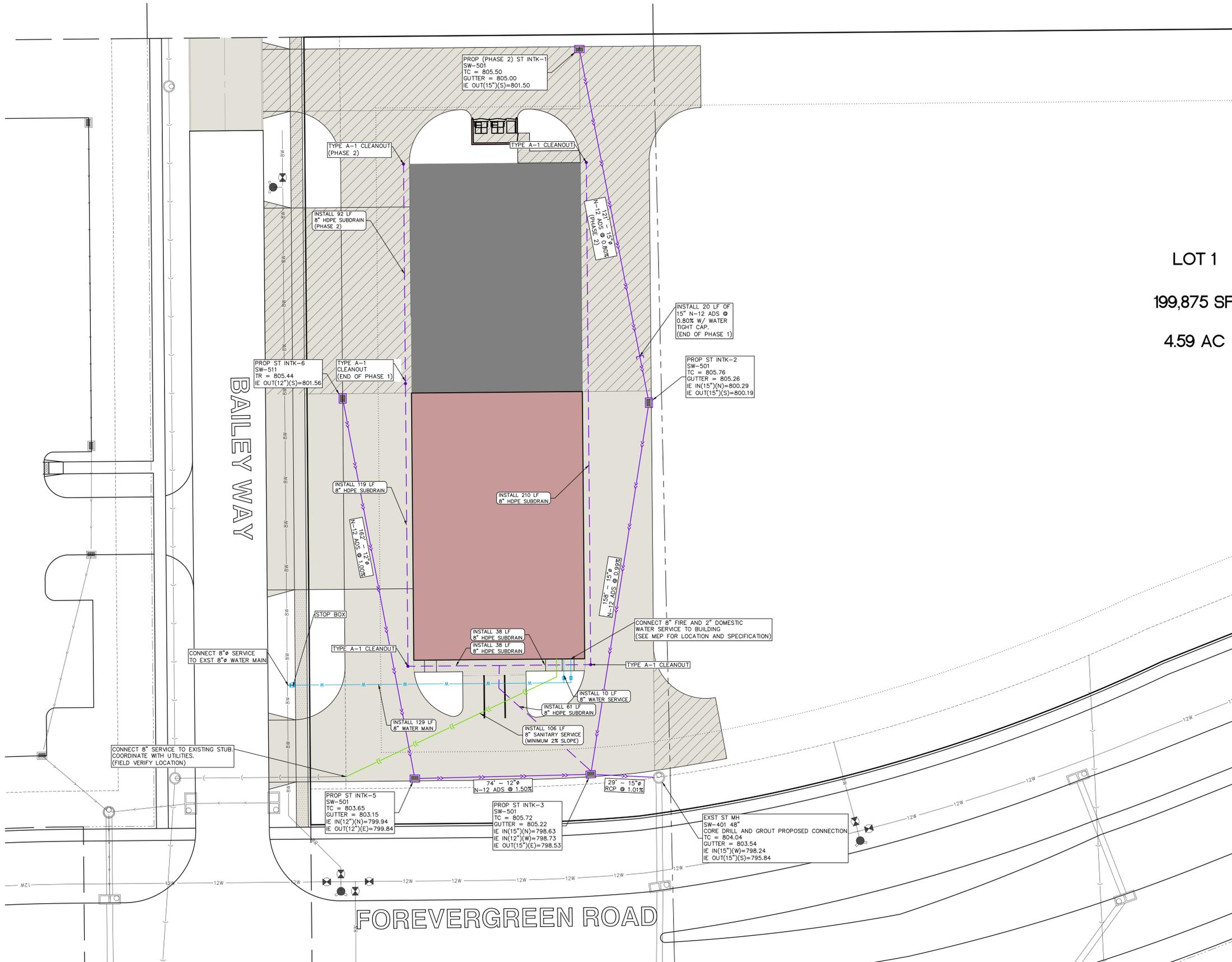
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NOTE: ALL PROPOSED STORM SEWER IS PRIVATE UNLESS OTHERWISE NOTED.

ALL PROPOSED WATERMAIN IS PRIVATE.
SEWER SERVICES TAPPED INTO EXISTING PVC SANITARY SEWER SHALL USE CB STYLE SEWER SADDLE WITH STAINLESS STEEL CLAMPS.

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---	PROPOSED EASEMENT LINES
---	EXISTING EASEMENT LINES
---	BENCHMARK
---	RECORDED DIMENSIONS
---	CURVE SEGMENT NUMBER
(R)	22-1
---	EXIST- POWER POLE
---	PROP- POWER POLE W/DROP
---	POWER POLE W/TRANS
---	POWER POLE W/LIGHT
---	GUY POLE
---	LIGHT POLE
---	SANITARY MANHOLE
---	FIRE HYDRANT
---	WATER VALVE
---	DRAINAGE MANHOLE
---	CURB INLET
---	FENCE LINE
---	EXISTING SANITARY SEWER
---	PROPOSED SANITARY SEWER
---	EXISTING STORM SEWER
---	PROPOSED STORM SEWER
---	WATER LINES
---	ELECTRICAL LINES
---	TELEPHONE LINES
---	GAS LINES
---	CONTOUR LINES (1' INTERVAL)
---	PROPOSED GROUND
---	EXISTING GROUND
---	EXISTING TREE LINE
---	EXISTING DECIDUOUS TREE & SHRUB
---	EXISTING EVERGREEN TREES & SHRUBS

THE ACTUAL SIZE AND LOCATION OF ALL PROPOSED FACILITIES SHALL BE PREPARED AND SUBMITTED SUBSEQUENT TO THE APPROVAL OF THIS DOCUMENT.

UTILITIES

THE CONTRACTOR SHALL NOTIFY IOWA ONE CALL AT 811 OR 800/292-8989 NO LESS THAN 48 HRS. IN ADVANCE OF ANY DIGGING OR EXCAVATION.

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

IOWA ONE CALL

SITE UTILITY PLAN

LOT 1,
PARK PLACE CITY
CENTER - PART 3
TIFFIN
JOHNSON COUNTY
IOWA

MMS CONSULTANTS, INC.
Date: 01-22-2025
Designed by: CAT
Drawn by: ADP
Checked by: CAT
Project No: C160
Field Book No:
Scale: 1"=20'
Sheet No:
0147-017 of 6

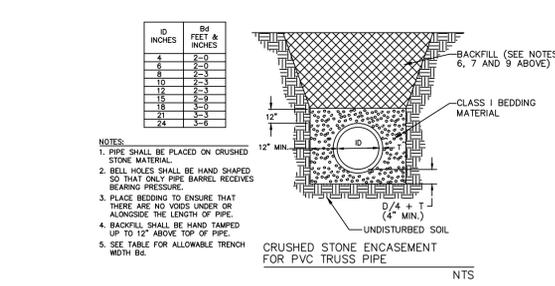
SANITARY SEWER AND WATER MAIN CONSTRUCTION NOTES

- SANITARY SEWER AND WATER MAIN CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SUDAS STANDARD SPECIFICATIONS. CITY OF TIFIN DESIGN AND CONSTRUCTION STANDARDS AND PROCEDURES SHALL PREVAIL.
- CONTRACTOR SHALL PROVIDE CRUSHED STONE ENCASMENT BEDDING FOR ALL SANITARY SEWER UNLESS NOTED OTHERWISE ON THE PLANS.
- SANITARY SEWERS TO BE PVC TRUSS PIPE UNLESS NOTED OTHERWISE. SANITARY SEWER SERVICE LINES SHALL BE PVC, SDR 23.5 WITH GASKETED JOINTS. SANITARY SEWER SERVICE LINES SHALL BE 4" DIAMETER UNLESS NOTED OTHERWISE.
- CONTRACTOR TO PROVIDE CLOW "BAND-SEAL" COUPLINGS FOR DISSIMILAR PIPE CONNECTIONS.
- 8" AND 12" DIAMETER WATER MAINS SHALL BE DR-18 PVC PIPE. ALL WATER MAIN FITTINGS SHALL BE DUCTILE IRON WITH RETAINING GLANDS AND MEGALUGS. ALL FITTINGS FOR WATER MAIN SHALL BE RESTRAINED WITH THRUST BLOCKS. ALL WATER MAINS AND SERVICE LINES SHALL HAVE CLASS P-1 BEDDING PER IOWA DOT STANDARD ROAD PLAN SW-104. FOR ALL WATER LINE VALVES, THE VALVE BOX AND GATE VALVE UNDER AWWA SHOULD BE INCLUDED ALONG WITH A VALVE BOX CENTERING ADAPTOR.
- SANITARY SEWER TRENCHES SHOWN ON THE PROFILE VIEW SHALL BE BACKFILLED WITH EITHER OF THE FOLLOWING COMPACTED TO 95% STANDARD PROCTOR DENSITY:
 - SUITABLE EXCAVATED MATERIAL. IF EXCAVATED MATERIAL IS NOT SUITABLE, THEN
 - CRUSHED STONE AS SPECIFIED FOR GRANULAR TRENCH BACKFILL SHALL BE USED.
- GRANULAR TRENCH BACKFILL SHALL BE CLASS A CRUSHED STONE CONFORMING TO I.D.O.T. STANDARD SPECIFICATION 4120.04 WITH 1" MAXIMUM AGGREGATE SIZE. COMPACT TO 95% STANDARD PROCTOR DENSITY.
- ALL SANITARY SEWER SERVICE LINES CROSSING STREET RIGHT-OF-WAY SHALL BE BACKFILLED IN ACCORDANCE WITH THE PRECEDING NOTE.
- WATER MAINS AND SERVICE LINES WITHIN STREET RIGHT OF WAYS OR WITHIN EASEMENTS ADJACENT TO THE STREET SHALL BE BACKFILLED WITH EITHER OF THE FOLLOWING COMPACTED TO 95% STANDARD PROCTOR DENSITY:
 - SUITABLE EXCAVATED MATERIAL. IF EXCAVATED MATERIAL IS NOT SUITABLE, THEN
 - CRUSHED STONE AS SPECIFIED FOR GRANULAR TRENCH BACKFILL SHALL BE USED.
- ALL SANITARY SEWER SERVICE LINES SHALL BE EXTENDED:
 - TO THE UTILITY EASEMENT LINE FOR THOSE LOCATIONS WHERE THE LOTS BEING SERVED ARE ON THE OPPOSITE SIDE OF THE STREET FROM THE SEWER MAIN.
 - TO THE UTILITY EASEMENT LINE FOR THOSE LOCATIONS WHERE THE LOTS BEING SERVED ARE ADJACENT TO THE SEWER MAIN.

THE FOLLOWING MINIMUM CLEARANCES MUST BE MAINTAINED:

 - WATER MAIN SHALL BE LOCATED 10 FEET HORIZONTALLY DISTANT FROM ALL SANITARY SEWER AND STORM SEWER.
 - WATER MAIN SHALL NOT PASS THROUGH NOR CONTACT A SEWER OR A SEWER MANHOLE. A MINIMUM HORIZONTAL SEPARATION OF 3 FEET SHALL BE MAINTAINED.
 - VERTICAL SEPARATION OF WATER MAINS CROSSING OVER ANY SANITARY SEWER SHOULD BE A MINIMUM OF 18-INCHES, MEASURED OUTSIDE TO OUTSIDE FROM THE CLOSEST EDGE OF EACH PIPE. IF PHYSICAL CONDITIONS PROHIBIT THIS SEPARATION, THE WATER MAIN SHALL NOT BE PLACED CLOSER THAN 6-INCHES ABOVE A SEWER OR 18-INCHES BELOW A SEWER. THE SEPARATION DISTANCE SHALL BE THE MAXIMUM FEASIBLE IN ALL CASES. WHERE THE SEWER CROSSES OVER OR LESS THAN 18 INCHES BELOW A WATER MAIN ONE FULL LENGTH OF SEWER PIPE OF WATER MAIN MATERIAL SHALL BE LOCATED SO BOTH JOINTS ARE AS FAR AS POSSIBLE FROM THE WATER MAIN. THE SEWER AND WATER PIPES MUST BE ADEQUATELY SUPPORTED AND HAVE WATERTIGHT JOINTS. A LOW PERMEABILITY SOIL SHALL BE USED FOR BACKFILL MATERIAL WITHIN 10 FEET OF THE POINT OF CROSSING.
 - WHERE THE WATER MAIN CROSSES SEWER, ONE FULL LENGTH OF WATER PIPE SHALL BE LOCATED SO BOTH JOINTS ARE AS FAR AS POSSIBLE FROM THE SEWER. THE WATER AND SEWER PIPES MUST BE ADEQUATELY SUPPORTED AND HAVE WATER TIGHT JOINTS. A LOW PERMEABILITY SOIL SHALL BE USED FOR BACKFILL MATERIAL WITHIN 10-FEET OF THE POINT OF CROSSING.
 - NOMINAL DEPTH OF WATER MAIN = 5.5 FEET TO TOP OF PIPE.
 - WATER MAIN SHADED ON PLAN VIEW SHALL BE INSTALLED PRIOR TO PAVING.
 - ALL SANITARY SEWER AND SERVICE LINES SHALL BE AIR TESTED TO PASS THE FOLLOWING TEST:
 - PERFORM FROM MANHOLE-TO-MANHOLE AFTER BACKFILL.
 - PLACE PNEUMATIC PLUGS: (1) SEALING LENGTH: EQUAL TO OR GREATER THAN PIPE DIAMETER, (2) CAPABLE OF RESISTING INTERNAL TEST PRESSURE WITHOUT EXTERNAL BRACING OR BLOCKING.
 - INTRODUCE LOW-PRESSURE AIR INTO SEALED LINE AND ACHIEVE INTERNAL AIR PRESSURE 4 PSIG GREATER THAN MAXIMUM PRESSURE EXERTED BY GROUNDWATER ABOVE PIPE INVERT.
 - LIMIT INTERNAL PRESSURE IN SEALED LINE BELOW 8 PSIG.
 - ALLOW 2 MINUTES MINIMUM FOR AIR PRESSURE TO STABILIZE. DISCONNECT LOW-PRESSURE AIR HOSE FROM CONTROL PANEL.
 - MINIMUM TIME FOR PRESSURE TO DROP FROM 3.5 TO 2.5 PSIG GREATER THAN MAXIMUM PRESSURE EXERTED BY GROUNDWATER ABOVE PIPE INVERT:

PIPE DIAMETER, INCHES	MINIMUM TIME, MIN.	LENGTH FOR TEST, FEET	TIME FOR PRESSURE TO DROP, S
4	3:46	597	0.380 L
6	5:40	398	0.854 L
8	7:34	298	1.620 L
10	9:26	239	2.374 L
12	11:20	199	3.418 L
15	14:10	159	5.342 L
18	17:00	133	7.692 L
21	19:50	114	10.470 L
24	22:40	99	13.674 L
27	25:30	88	17.506 L
30	28:20	80	21.366 L
33	31:10	72	25.852 L
36	34:00	66	30.768 L

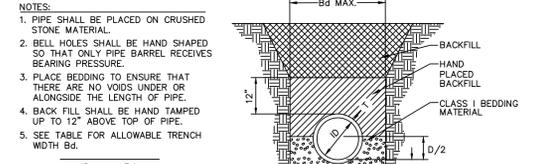


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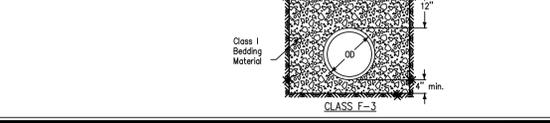
STORM SEWER CONSTRUCTION NOTES

- STORM SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SUDAS STANDARD SPECIFICATIONS. CITY OF TIFIN DESIGN AND CONSTRUCTION STANDARDS AND PROCEDURES SHALL PREVAIL.
- ALL STORM SEWERS SHALL BE CLASS 3 RCP WITH CLASS R-2 BEDDING OR ADS N-12 WITH CLASS F-3 BEDDING PER SUDAS.
- RCP STORM SEWERS SHALL BE TONGUE & GROOVE WITH ALL JOINTS WRAPPED WITH FILTER FABRIC A MINIMUM OF 24" WIDE UNLESS NOTED OTHERWISE ON THE PLANS.
- GRANULAR TRENCH BACKFILL SHALL BE CRUSHED STONE CONFORMING TO I.D.O.T. STANDARD SPECIFICATION 4120.04 WITH 1" MAXIMUM AGGREGATE SIZE. COMPACT TO 95% STANDARD PROCTOR DENSITY.
- ALL PIPE SHALL BE CERTIFIED.
- ALL STORM INTAKES SHALL BE A MINIMUM OF 48 INCHES FROM THE TOP OF CURB/RIM TO SUBGRADE. IF INVERT ELEVATIONS ARE INSUFFICIENT TO PROVIDE THE REQUIRED DEPTH, THE CONTRACTOR IS TO PROVIDE A DEEPER STRUCTURE AND POUR CONCRETE FILLET IN INTAKE TO MAKE INTAKE PIPES DRAIN AT ELEVATIONS LISTED.
- LIFT HOLES IN STORM SEWER WILL NOT BE ALLOWED.
- PROVIDE CONCRETE FILLETS IN ALL NEW & EXISTING DRAINAGE STRUCTURES PER REFERENCED DETAILS.
- ALL STORM MANHOLES SHALL HAVE INTERIOR CHIMNEY SEALS.

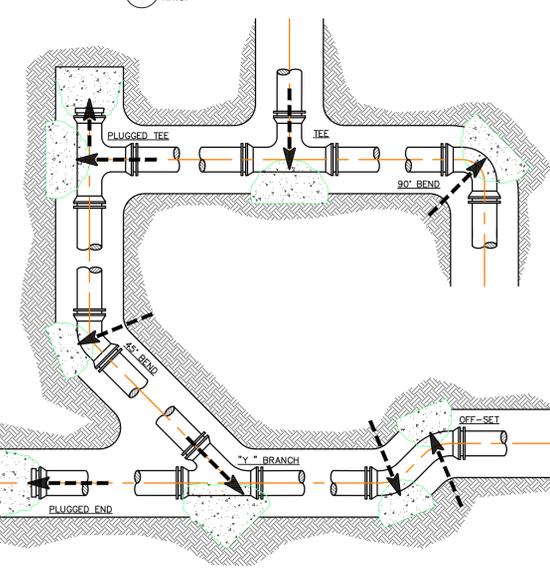
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ID INCHES	Bg FEET & INCHES
12	2-3
15	3-0
18	3-6
21	4-0
24	4-6
27	5-0
30	5-6
36	6-0



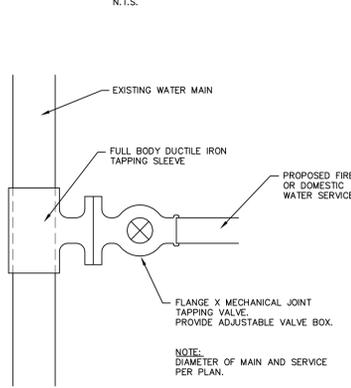
THRUST BLOCK DETAIL



THRUST BLOCK MINIMUM BEARING AREA (IN SQUARE FEET)

PIPE SIZE	DEAD END OR TEE	90° BEND	45° BEND	11-1/4° BEND	22-1/2° BEND
4"	1.4	1.9	1.0	1.0	1.0
6"	2.8	4.0	2.1	1.1	1.0
8"	4.8	6.8	3.7	1.9	1.0
10"	7.3	10.3	5.8	2.8	1.4
12"	10.3	14.5	7.9	4.0	2.0
16"	17.8	25.2	13.6	7.0	3.5
20"	27.5	38.9	21.0	10.7	5.4
24"	39.2	55.5	30.0	15.3	7.7

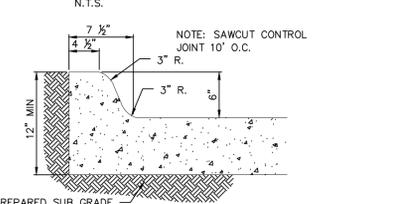
LIVE TAP DETAIL



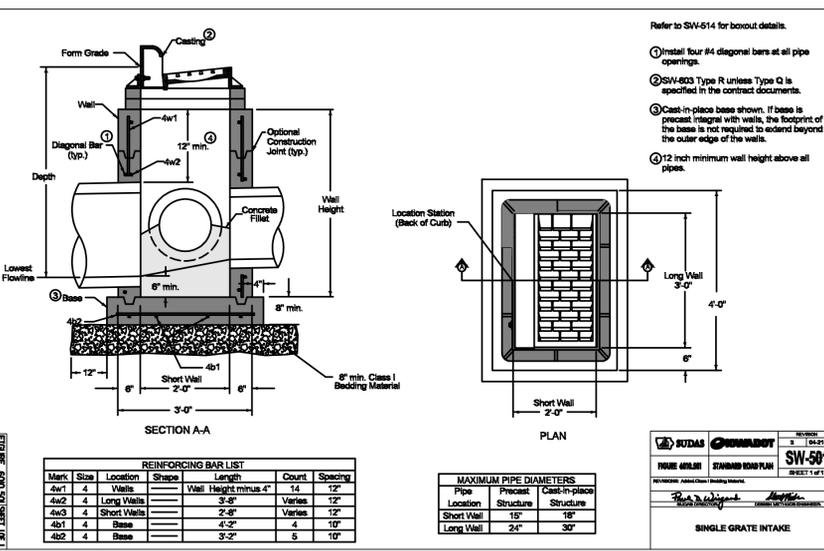
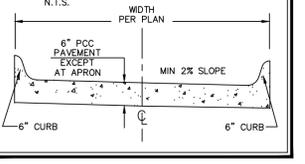
PAVING CONSTRUCTION NOTES

- I.D.O.T. CLASS C-3 CONCRETE SHALL BE USED, UNLESS NOTED OTHERWISE.
- CITY OF TIFIN DESIGN AND CONSTRUCTION STANDARDS AND PROCEDURES SHALL PREVAIL.
- PAVEMENT JOINTS SHALL CONFORM TO I.D.O.T. STANDARD ROAD PLANS PV-1 CURRENT REVISION.
- ALL SAWED PAVEMENT JOINTS SHALL BE SEALED.
- INSTALL "CD" TRANSVERSE CONTRACTION JOINTS FOR 8" PCC PAVEMENT. "C" TRANSVERSE CONTRACTION JOINTS SHALL BE USED FOR 7" PCC PAVEMENT.

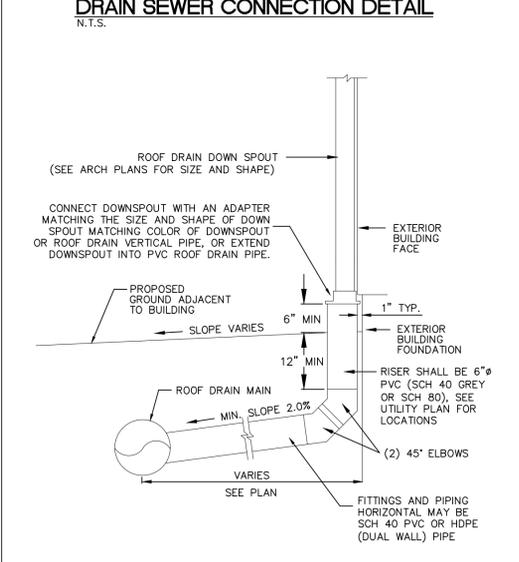
STANDARD CURB DETAIL



TYPICAL DRIVE SECTION



DOWNSPOUT TO ROOF



**SIZES PER MECHANICAL CONTRACTOR

**METER FOR THE DOMESTIC LINE IS INTERNAL TO THE BUILDING - FIRE LINE IS NOT METERED.

** 4-INCH SERVICE TO BE TYPE K COPPER.

** 8-INCH FIRE TO BE C900 PVC.

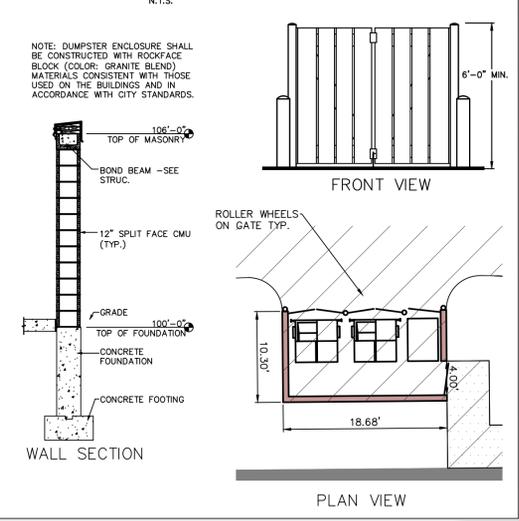
WATER SERVICE DETAIL

NO SCALE

FIRE INSPECTION NOTES

- FIRE LINE THRUST BLOCKS SHALL BE INSPECTED BY THE FIRE MARSHAL PRIOR TO BURIAL.
- NEPA 24 UNDERGROUND HIGH VELOCITY FLUSH SHALL BE CONDUCTED PRIOR TO THE SPRINKLER CONTRACTOR CONNECTING TO THE FIRE LINE.
- THE SPRINKLER SYSTEM SHALL BE FLOW TESTED WITHIN 90-DAY SUBMITTAL OF FIRE SPRINKLER PLANS.

TRASH ENCLOSURE DETAIL



CIVIL ENGINEERS
LAND PLANNERS
LAND SURVEYORS
LANDSCAPE ARCHITECTS
ENVIRONMENTAL SPECIALISTS

1917 S. GILBERT ST.
IOWA CITY, IOWA 52240
(319) 351-8282

www.mmsconsultants.net

Date	Revision
02-10-2025	PER CITY COMMENTS
02-19-2025	PER CITY COMMENTS
03-01-2025	PER BID COMMENTS - CAT
04-04-2025	SANITARY SERVICE - CAT
06-11-2025	MOVED INTAKE TO HARD CONCRETE - CAT
07-03-2025	ADDED PHASING - CAT
12-04-2025	MASS GRADE NOTE FOR BID - CAT
01-09-2026	PHASING CHANGES - CAT
01-20-2026	PHASING CHANGES - CAT

GENERAL NOTES AND DETAILS

LOT 1,
PARK PLACE CITY
CENTER - PART 3
TIFFIN
JOHNSON COUNTY
IOWA

MMS CONSULTANTS, INC.

Date: 01-22-2025

Designed by: CAT Field Book No:

Drawn by: ADP Scale:

Checked by: CAT Sheet No:

Project No: C500

0147-017 of 6

SITE PLAN

LOT 1, PARK PLACE CITY CENTER - PART 3

TIFFIN, JOHNSON COUNTY, IOWA

PLAT PREPARED BY: MMS CONSULTANTS INC. 1917 S. GILBERT STREET IOWA CITY, IA 52240
 OWNER/APPLICANT: JOHNSON COUNTY 913 S DUBUQUE ST IOWA CITY, IA 52240
 APPLICANT'S ATTORNEY



- C120 OVERALL SITE LAYOUT AND DIMENSION PLAN
- C121 DETAILED SITE LAYOUT AND DIMENSION PLAN
- C140 OVERALL SITE GRADING AND EROSION CONTROL AND SWPPP
- C141 DETAILED SITE GRADING PLAN
- C160 SITE UTILITY PLAN
- C500 GENERAL NOTES AND DETAILS
- L100 SITE LANDSCAPE PLAN

LANDSCAPE REQUIREMENTS

1 STREET TREE FOR EVERY 60 LF OF FRONTAGE ON LOTS WITH MORE THAN ONE FRONTAGE.
 1,343.24 / 60 = 22 TREES REQ.
 8 TREES PROPOSED (14 FUTURE TREES)

LANDSCAPE LEGEND

TURF GRASS (40,931 SF) (INCLUDES UNIMPROVED AREAS FROM PHASE 2)

PLANT SCHEDULE

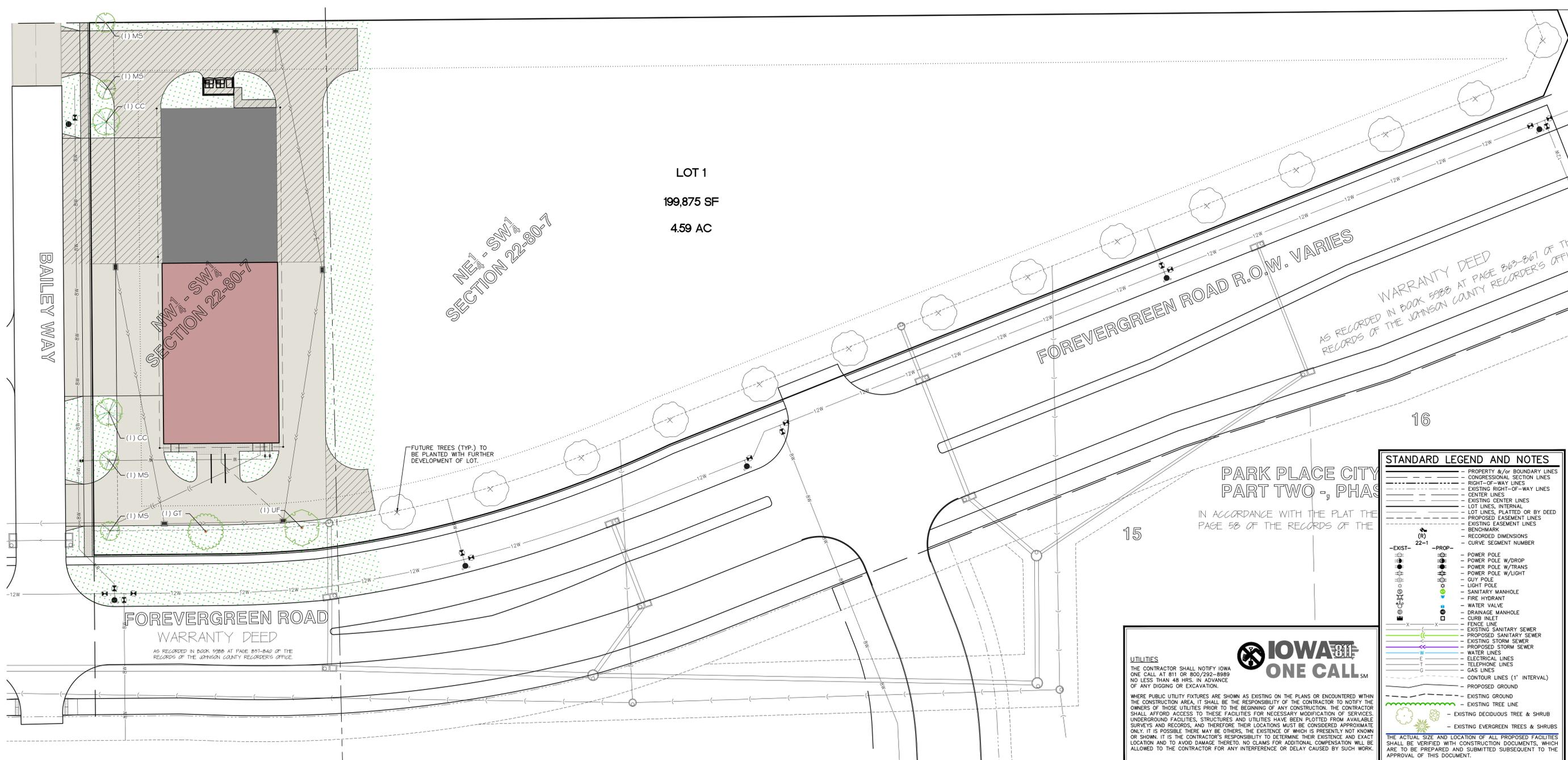
SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	INSTALL SIZE	COMMENT	MATURE H. X W.
TREES							
	CC	2	Cercis canadensis	Eastern Redbud	1.5' Cal.	B4B	30' x 25'
	GT	1	Gleditsia tracanthos inermis "Skycole"™	Skyline Thornless Honey Locust	2' Cal.	B4B	45' x 35'
	MS	4	Malus x "Sargenti"	Sargent Crabapple	1.5' Cal.	B4B	15' x 15'
	UF	1	Ulmus x "Frontier"	Frontier Hybrid Elm	2' Cal.	B4B	40' x 30'



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01-09-2026	PHASING CHANGES - CAT
01-20-2026	PHASING CHANGES - CAT



SITE LANDSCAPE PLAN

LOT 1,
 PARK PLACE CITY
 CENTER - PART 3
 TIFFIN
 JOHNSON COUNTY
 IOWA

MMS CONSULTANTS, INC.
 Date: 01-22-2025
 Designed by: CAT Field Book No:
 Drawn by: ADP Scale: 1"=30'
 Checked by: CAT Sheet No:
 Project No: L100
 0147-017 of 6

IOWA ONE CALL

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STANDARD LEGEND AND NOTES

- PROPERTY &/or BOUNDARY LINES
- CONGRESSIONAL SECTION LINES
- RIGHT-OF-WAY LINES
- EXISTING RIGHT-OF-WAY LINES
- CENTER LINES
- EXISTING CENTER LINES
- LOT LINES: INTERNAL
- LOT LINES: PLATTED OR BY DEED
- PROPOSED EASEMENT LINES
- EXISTING EASEMENT LINES
- BENCHMARK
- RECORDED DIMENSIONS
- CURVE SEGMENT NUMBER

EXIST- (R) 22-1

- POWER POLE
- POWER POLE W/DROP
- POWER POLE W/TRANS
- POWER POLE W/LIGHT
- GUY POLE
- LIGHT POLE
- SANITARY MANHOLE
- FIRE HYDRANT
- WATER VALVE
- DRAINAGE MANHOLE
- CURB INLET
- FENCE LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- WATER LINES
- ELECTRICAL LINES
- TELEPHONE LINES
- GAS LINES
- CONTOUR LINES (1' INTERVAL)
- PROPOSED GROUND
- EXISTING GROUND
- EXISTING TREE LINE
- EXISTING DECIDUOUS TREE & SHRUB
- EXISTING EVERGREEN TREES & SHRUBS

THE ACTUAL SIZE AND LOCATION OF ALL PROPOSED FACILITIES SHALL BE VERIFIED WITH CONSTRUCTION DOCUMENTS, WHICH ARE TO BE PREPARED AND SUBMITTED SUBSEQUENT TO THE APPROVAL OF THIS DOCUMENT.

0 - DESIGN PARAMETERS AND GOVERNING CODES

0.1 DESIGN BASIS:
GOVERNING BUILDING CODE 2021 IBC
AMENDMENTS AS REQUIRED BY JOHNSON COUNTY, IA
LOAD SPECIFICATION ASCE 7-16 [WITH IBC AMENDMENTS]

0.1.1 MATERIAL CODES [WITH IBC AMENDMENTS]:
CONCRETE ACI 318, ACI 301, ACI 308R, ACI 308R
WOOD AND TIMBER NDS, SDPWS

0.2 DESIGN LOADS:

0.2.1 ROOF LOADS:
DEAD LOAD: TOTAL 15 PSF
DEAD LOAD: TOP CHORD 10 PSF
DEAD LOAD: BOTTOM CHORD 5 PSF
LIVE LOAD 20 PSF
GROUND SNOW LOAD 30 PSF
FLAT ROOF SNOW LOADS (PF) 22 PSF
SNOW EXPOSURE FACTOR (CE) 1.0
SNOW LOAD IMPORTANCE FACTOR (IS) 1.1
THERMAL FACTOR (CT) 1.1
SLOPE FACTOR (SOLAR PANELS) 1.0
ROOF SNOW LOAD 2.5 PSF

0.2.2 FLOOR LOADS:
DEAD LOAD: TOTAL [MEZZANINE] 10 PSF
DEAD LOAD: TOP CHORD 5 PSF
DEAD LOAD: BOTTOM CHORD 5 PSF
LIVE LOAD [MEZZANINE] CLIENT SPECIFIED 100 PSF

0.2.3 WIND LOADS:
ULTIMATE DESIGN WIND SPEED (VULT) 115 MPH (3-SECOND GUST)
NOMINAL DESIGN WIND SPEED (VASD) 90 MPH
RISK CATEGORY III
WIND EXPOSURE CATEGORY C
ENCLOSURE CLASSIFICATION ENCLOSED/PARTIAL/OPEN
MIFRS PRESSURE 34.5 PSF
COMPONENT AND CLADDING PRESSURE 41.5 PSF

0.2.4 EARTHQUAKE LOADS:
RISK CATEGORY III
SEISMIC IMPORTANCE FACTOR (IE) 1.1
MAPPED SPECTRAL RESPONSE ACCELERATION SS 0.073
S1 0.058
D 0.078
SITE CLASS SDS 0.093
SD1 0.093
SEISMIC DESIGN CATEGORY B
BASIC SEISMIC FORCE-RESISTING SYSTEM(S) LIGHT FRAMED WALLS W/ SHEAR PANELS
DESIGN BASE SHEAR(S) 6 KIPS
SEISMIC RESPONSE COEFFICIENT(S) (CS) 0.039
RESPONSE MODIFICATION COEFFICIENT(S) (R) 2
ANALYSIS PROCEDURE EQUIVALENT LATERAL FORCE

0.2.5 GEOTECHNICAL INFORMATION:
DESIGN LOAD ALLOWABLE BEARING CAPACITY 1500 PSF PER IBC TABLE 1806.2 YES/NO
SITE FROST DEPTH 42 IN

0.2.6 FLOOD DESIGN DATA:
STRUCTURE LOCATED IN FLOOD HAZARD AREA YES/NO

0.2.7 SPECIAL LOADS:
0.2.7.1 HANDRAIL AND GUARDRAIL SYSTEMS
UNIFORM LIVE LOAD 50 PLF
CONCENTRATED LIVE LOAD 200 LBS
INTERMEDIATE RAIL LIVE LOAD 50 LBS APPLIED OVER 1 SQ. FT. OF AREA

0.3 SERVICEABILITY REQUIREMENTS:
DEFLECTION LIMITS PROVIDED BELOW SHALL NOT EXCEED THOSE SPECIFIED IN THE MATERIAL SPECIFIC CODES LISTED IN SECTION 0.1.1
ROOF MEMBERS: LL, SL, OR WL DEFLECTION SHALL NOT EXCEED L/240
TOTAL LOAD DEFLECTION SHALL NOT EXCEED L/180
FLOOR MEMBERS: LIVE LOAD DEFLECTION SHALL NOT EXCEED L/360
TOTAL LOAD DEFLECTION SHALL NOT EXCEED L/240
WALL MEMBERS: WIND LOAD DEFLECTION SHALL NOT EXCEED L/240

0.4 GENERAL NOTES:

0.4.1 REFER TO ARCHITECTURAL PLANS FOR LOCATION OF NON-BEARING PARTITION WALLS, DOOR AND WINDOW LOCATIONS, AND DIMENSIONS NOT SHOWN ON THE STRUCTURAL PLANS.
0.4.2 ELEVATIONS INDICATED ON STRUCTURAL PLANS/DETAILS ARE TO THE TOP OF BEAMS, FOOTINGS, SLABS, ETC., UNO.
0.4.3 BUILDING DRAINAGE, INSULATION, FLASHING, VAPOR/MOISTURE PROTECTION, FIREPROOFING, AND OTHER NON-STRUCTURAL COMPONENTS ARE NOT SHOWN ON THE STRUCTURAL PLANS. REFER TO THE ARCHITECTURAL/MECHANICAL DRAWINGS AND SPECIFICATIONS FOR REQUIREMENTS.
0.4.4 ALL SECTIONS, DETAILS AND NOTES SHOWN ON THE STRUCTURAL DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS, UNO.
0.4.5 THE STRUCTURAL INTEGRITY OF THE BUILDING SHOWN ON THESE PLANS IS DEPENDENT UPON COMPLETION ACCORDING TO THE CONTRACT DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FURNISH ALL TEMPORARY BRACING AND/OR SHORING SUPPORT REQUIRED AS A RESULT OF CONSTRUCTION METHODS AND SEQUENCES.
0.4.6 THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK. NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY IN WRITING OF ANY DISCREPANCIES.
0.4.7 DO NOT SCALE DIMENSIONS FROM THE PLANS, SECTIONS, OR DETAILS.
0.4.8 ANY OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER AND RESOLVED BEFORE PROCEEDING WITH ANY WORK INVOLVED.
0.4.9 THE STRUCTURAL ENGINEER OF RECORD IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE PRIMARY STRUCTURE IN ITS COMPLETED FORM. THE CONTRACTOR IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND SHALL PROVIDE TEMPORARY SHORING, BRACING AND OTHER ELEMENTS REQUIRED TO MAINTAIN STABILITY UNTIL THE STRUCTURE IS COMPLETE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE WORK REQUIRED IN THE CONSTRUCTION DOCUMENTS AND THE REQUIREMENTS FOR EXECUTING IT PROPERLY. THE CONTRACTOR AT HIS DISCRETION SHALL EMPLOY HIS OWN SPECIALTY STRUCTURAL ENGINEER HAVING EXPERIENCE IN TEMPORARY BRACING AND SHORING.
0.4.10 THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND THE METHODS OF CONSTRUCTION AND FOR JOB SITE CONDITIONS, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, DURING THE COURSE OF CONSTRUCTION OF THE PROJECT. CONTRACTOR TO FOLLOW ALL JOB SITE SAFETY STANDARDS, SUCH AS OSHA.
0.4.11 DO NOT CUT OR MODIFY IN ANY OTHER WAY ANY STRUCTURAL MEMBER FOR PLACEMENT OF PIPES, DUCTS, ETC.
0.4.12 ANY DIFFERENCES IN DIMENSIONS BETWEEN STRUCTURAL PLANS AND ARCHITECTURAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER IMMEDIATELY.
0.4.13 ALL HOLES THROUGH EXISTING CONSTRUCTION SHALL BE CORE DRILLED OR SAW CUT AND APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.

1 - SOIL AND GEOTECHNICAL NOTES

1.1 FOUNDATION DESIGN BEARING PRESSURES ARE BASED UPON 1500 PSF PER IBC TABLE 1806.2
1.2 SELECT STRUCTURAL ENGINEERING RECOMMENDS SOIL CONDITIONS BE VERIFIED BY QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO FOOTING PLACEMENT.
1.3 FOUNDATIONS SHALL BEAR ON SUITABLE NATIVE SOILS OR COMPACTED STRUCTURAL FILL EXTENDING TO SUITABLE NATIVE SOILS AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
1.4 EXISTING UNSUITABLE FILL MATERIAL ENCOUNTERED BELOW FLOOR SLABS AND FOUNDATIONS, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, SHALL BE REMOVED AND REPLACED WITH PROPERLY PLACED AND COMPACTED STRUCTURAL FILL MATERIAL.
1.5 EXCAVATIONS SHALL BE FREE OF WATER, FROST, ICE, LOOSE SOIL, AND OTHER DELETERIOUS MATERIALS PRIOR TO CONCRETE PLACEMENT. ANY UNSUITABLE MATERIAL IS TO BE REMOVED AND REPLACED WITH COMPACTED STRUCTURAL FILL MATERIAL.
1.6 ANY FILL MATERIAL REQUIRED TO BRING THE SUBGRADE TO BEARING ELEVATION IS TO BE TESTED AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT. FILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED EIGHT (8) INCHES IN THICKNESS WHEN HEAVY, SELF-PROPELLED COMPACTION EQUIPMENT IS UTILIZED, SIX (6) INCHES IN THICKNESS WHEN HAND-HELD COMPACTION EQUIPMENT IS UTILIZED.
1.6.1 FILL MATERIAL SHALL BE COMPACTED AS DETERMINED BY THE GEOTECHNICAL ENGINEER AND SOILS REPORT, OR:
UNDER SLABS: MATERIAL SHOULD BE COMPACTED TO AT LEAST 95% OF ITS MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D-698).
UNDER FOOTINGS: MATERIAL SHOULD BE COMPACTED TO AT LEAST 98% OF ITS MAXIMUM STANDARD PROCTOR DRY DENSITY (ASTM D-698).
THE HIGHER DEGREE OF FILL COMPACTION BELOW FOOTINGS SHALL EXTEND Laterally BEYOND THE EXTERIOR EDGES OF THE ELEMENT AT LEAST EIGHT (8) INCHES PER FOOT OF THICKNESS BELOW THE ELEMENT'S BASE ELEVATION.
1.7 THE CONTRACTOR IS RESPONSIBLE TO LOCATE, VERIFY AND MARK THE LOCATION OF UNDERGROUND UTILITIES PRIOR TO EXCAVATION FOR FOOTINGS/FOUNDATIONS.

2 - CONCRETE NOTES

2.1 EXCEPT WHERE MODIFIED BY THESE PLANS AND SPECIFICATIONS, ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MATERIAL CODES LISTED IN SECTION 0.1.1
2.2 REINFORCING IS TO BE DETAILED IN ACCORDANCE WITH ACI 315-LATEST, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
2.3 CONCRETE SHALL BE TYPE III FOR NON-WINTER CONSTRUCTION AND TYPE III FOR WINTER CONSTRUCTION, CONFORMING TO ASTM C150, AND HAVE 28 DAY COMPRESSIVE STRENGTHS AS FOLLOWS, UNO:
FOOTINGS 3000 PSI
FOUNDATION WALLS, PIERS 3000 PSI
SLABS-ON-GRADE 4000 PSI
2.4 CONCRETE SHALL BE NORMAL WEIGHT CONCRETE UNLESS NOTED OTHERWISE. CONCRETE AGGREGATES SHALL CONFORM TO ASTM C33 FOR NORMAL WEIGHT CONCRETE MIXES.
2.5 CONCRETE REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE FOLLOWING STANDARDS:
REINFORCING BARS ASTM A615, GRADE 60
WELDED WIRE FABRIC ASTM A1064
REBAR TO BE WELDED ASTM A706, GRADE 60
2.6 LAP SPLICES SHALL BE CLASS A, UNO AND FOLLOW LAP SCHEDULE SHALL APPLY TO CONCRETE FOUNDATION:
#4 REBAR 17 INCHES
#5 REBAR 22 INCHES
#6 REBAR 27 INCHES
WELDED WIRE FABRIC 8 INCHES
2.7 WELDED WIRE FABRIC MAY BE REPLACED WITH FIBER REINFORCING, SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.
2.8 STANDARD HOOKS SHALL BE PROVIDED AS NOTED AND CONFORM TO TYPICAL DETAILS.
2.9 MAINTAIN THE MINIMUM CONCRETE COVERAGE FOR REINFORCING AS INDICATED ON THE DRAWINGS, UNO.
CONCRETE CAST DIRECTLY AGAINST EARTH 3 INCHES
CONCRETE EXPOSED TO EARTH OR WEATHER:
BARS #6 AND LARGER 2 INCHES
BARS #5 AND SMALLER 1-1/2 INCHES
PLACE REINFORCING BARS AS NEAR TO THE SURFACE AS THESE MINIMUMS PERMIT, UNO.
2.10 SHIFT REINFORCING TO CLEAR ANCHOR BOLTS AND EMBEDDED ITEMS, CUTTING OF REINFORCING BARS IS NOT PERMITTED.
2.11 REINFORCING SHALL RUN CONTINUOUS THROUGH CONSTRUCTION JOINTS, UNO.
2.12 VERTICAL CONSTRUCTION JOINTS IN WALLS SHALL HAVE KEYWAYS 1-1/2 INCHES DEEP BY ONE THIRD THE WALL THICKNESS.
2.13 PROVIDE HORIZONTAL REINFORCING CONTINUOUS AROUND ALL CORNERS, UNO. PROVIDE CORNER BARS WITH 48 BAR DIAMETER LENGTH LAP SPLICE AT ALL INTERSECTIONS OF FOOTINGS, AND WALLS, SAME SIZE AND SPACING AS HORIZONTAL REINFORCING, UNO.
2.14 HOT WEATHER CONCRETE OPERATIONS SHALL BE IN ACCORDANCE WITH ACI 305. COLD WEATHER CONCRETE OPERATIONS SHALL BE IN ACCORDANCE WITH ACI 306.
2.15 AIR ENTRAINMENT SHALL BE EMPLOYED TO REACH 5 - 7% TOTAL AIR CONTENT IN CONCRETE USED FOR EXTERIOR CONSTRUCTION.
2.16 FLY ASH IN CONFORMANCE WITH ASTM C618 MAY BE USED TO REPLACE UP TO 25% OF THE REQUIRED CEMENTITIOUS MATERIAL.
2.17 ADMIXTURES ARE PERMITTED AS FOLLOWS, SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD:
WATER REDUCING ASTM C494
FLOWING AGENTS ASTM C1017
AIR-ENTRAINING ASTM C260
2.18 CHLORIDE BASED ACCELERANTS ARE NOT PERMITTED.

5 - WOOD AND TIMBER NOTES

5.1 EXCEPT WHERE MODIFIED BY THESE PLANS AND SPECIFICATIONS, ALL WOOD AND TIMBER WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MATERIAL CODES LISTED IN SECTION 0.1.1
5.2 ALL STRUCTURAL FRAMING LUMBER SHALL BE CLEARLY MARKED WITH THE GRADE, INSPECTION AGENCY AND GRADING RULES.
5.3 DIMENSIONAL LUMBER SHALL BE SPF #1/#2 FOR 2X6 AND SMALLER MEMBERS AND DF-LARCH #2 FOR 2X8 AND LARGER MEMBERS, AND MEET THE MATERIAL PROPERTIES LISTED BELOW, UNO.
MINIMUM DIMENSIONAL LUMBER PROPERTIES
TYPE GRADE FB (PSI) FT (PSI) FV (PSI) FC (PSI) E (KSI) GRADING RULES
SPF #1/#2 875 450 135 1150 1400 NLGA
DF-LARCH #2 900 575 180 1350 1600 WCLB/WWPA
SYP #2 VARIES VARIES 175 VARIES 1600 SPIB
5.4 ENGINEERED LUMBER SHALL MEET THE MATERIAL PROPERTIES LISTED BELOW, UNO.
MINIMUM ENGINEERED LUMBER PROPERTIES
TYPE GRADE FB (PSI) FT (PSI) FV (PSI) FC (PSI) E (KSI)
LVL 1.9E 2600 1555 265 2510 1900
5.4.1 STRUCTURAL COMPOSITE LUMBER (LVL AND PSL) SHALL CONFORM TO ASTM D5456.
5.5 WOOD STRUCTURAL PANELS (INCLUDING OSB AND PLY-WOOD) SHALL MEET THE REQUIREMENTS OF USDOC PS1 AND PS2 OR ANSII/APA PRP 210.
5.6 WOOD SHEATHING AND NAILING REQUIREMENTS SHALL BE AS NOTED ON PLANS AND DETAILS. FOR SHEATHING NOT NOTED ON DRAWINGS THE FOLLOWING MINIMUMS SHALL APPLY:
5.6.1 FLOOR SHEATHING SHALL BE A MINIMUM 23/32" APA RATED PANEL ATTACHED WITH 8D NAILS AT 6" OC EDGE AND 12" OC FIELD.
5.6.2 EXTERIOR WALL SHEATHING SHALL BE A MINIMUM 7/16" ATA RATED PANEL ATTACHED WITH 8D NAILS AT 6" OC EDGE AND 12" OC FIELD.
5.7 ALL WOOD IN CONTACT WITH CONCRETE, MASONRY, OR SOIL, OR WOOD THAT IS EXPOSED TO THE WEATHER SHALL BE PRESSURE TREATED PRESERVATIVE LUMBER. ALL STEEL NAILS, BOLTS AND CONNECTORS IN CONTACT WITH PRESSURE TREATED LUMBER SHALL BE GALVANIZED TO G185 THICKNESS SPECIFICATIONS, TRIPLE COATED, OR STAINLESS STEEL.

6 - ANCHORAGE, FASTENERS, WELDING, AND OTHER CONNECTING MEDIUMS

6.1 CAST-IN-PLACE CONCRETE ANCHORS SHALL BE 3/4" DIAMETER ASTM F1554 GRADE 55 ANCHORS OR ASTM A193 GRADE B7, UNO. APPLICABLE ANCHOR TYPES AND INSTALLATION REQUIREMENTS SHALL BE PER THE TYPICAL CONCRETE ANCHORAGE DETAIL.
6.2 POST INSTALLED CONCRETE ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF APPENDIX D OF ACI 318. WEDGES/SLEEVE BOLTS, UNDERCUT BOLTS, EPOXY/ADHESIVE ANCHORS, AND SCREW ANCHORS ARE PERMISSIBLE IN ACCORDANCE WITH THE TYPICAL CONCRETE ANCHORAGE DETAIL WHERE EXPLICIT ANCHORS ARE NOT SPECIFIED ON THE PLANS OR DETAILS.
6.3 POWDER-ACTUATED FASTENERS SHALL BE PROVIDED PER PLANS AND DETAILS. PINS SPECIFIED ON PLANS ARE HILTI X-U, HILTI X-HSN24, OR HILTI X-ENP19, UNO. STEEL DECK FASTENING SHALL BE HILTI X-HSN24 WHEN ATTACHED TO BAR JOIST WITH A METAL THICKNESS NOT EXCEEDING 3/8"; HILTI X-ENP19 SHALL BE USED FOR BASE MATERIAL THICKNESSES EXCEEDING 3/8". DECK SIDELAP CONNECTORS SHALL BE HILTI SLC FASTENERS, UNO.
6.4 WOOD FASTENERS SHALL CONFORM TO THE FOLLOWING:
6.4.1 STEEL NAIL FASTENERS SHALL CONFORM TO ASTM F1667, WHERE NAIL PENNY WEIGHT DESIGNATION IS USED ON PLANS AND DETAILS THE FOLLOWING MINIMUM DIMENSIONS SHALL BE MET FOR AN ALTERNATIVE FASTENER TO BE DEEMED EQUIVALENT.
TYPICAL PENNYWEIGHT NAIL PROPERTIES
TYPE COMMON BOX SINKER
PENNYWEIGHT LENGTH DIAMETER LENGTH DIAMETER LENGTH DIAMETER
60 2" .113" 2" .099" 1-7/8" .092"
80 2-1/2" .131" 2-1/2" .113" 2-3/8" .113"
100 3" .148" 3" .128" 2-7/8" .12"
120 3-1/4" .148" 3-1/4" .128" 3-1/8" .135"
160 3-1/2" .162" 3-1/2" .135" 3-1/4" .148"
200 4" .192" 4" .148" 3-1/4" .177"
6.4.2 STANDARD WOOD SCREWS SHALL CONFORM TO ANSII/ASME B18.6.1.
6.4.3 STANDARD HEX LAG SCREWS SHALL CONFORM TO ANSII/ASME B18.2.1.
6.4.4 STANDARD DOWELS (BOLTS) AND NUTS SHALL CONFORM TO ANSII/ASME B18.2.1. STANDARD CUT WASHERS SHALL CONFORM TO ANSII/ASME B18.22.1.
6.5 WOOD STRUCTURAL CONNECTORS (INCLUDING JOIST HANGERS, HOLD DOWNS, TIES, STRAPS, CLIPS, ETC) SHALL BE PROVIDED AS SPECIFIED ON THE PLANS AND DETAILS. SUBSTITUTION OF THE BRAND AND TYPE OF CONNECTOR IS PERMITTED WHEN THE CONTRACTOR PROVIDES DOCUMENTATION INDICATING LOAD CAPACITIES OF REPLACEMENT IS EQUAL OR GREATER THAN THE ORIGINALLY SPECIFIED HARDWARE AND WITH PRIOR APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.
6.6 COLD-FORMED STRUCTURAL CONNECTORS (INCLUDING CLIPS, HANGERS, BRACING, HOLD DOWNS, STRAPS, SHEAR BOOTS, ETC) SHALL BE PROVIDED AS SPECIFIED ON THE PLANS AND DETAILS. CONNECTORS WILL BE SPECIFIED FROM ONE MANUFACTURER CLARK/DIETRICH, TSN, SIMPSON STRONG-TIE, ETC); HOWEVER, SUBSTITUTIONS ARE PERMITTED WHEN THE CONTRACTOR PROVIDES DOCUMENTATION INDICATING LOAD CAPACITIES OF REPLACEMENTS ARE EQUAL OR GREATER THAN THE ORIGINALLY SPECIFIED HARDWARE AND WITH PRIOR APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.

10 - WOOD TRUSSES

10.1 EXCEPT WHERE MODIFIED BY THESE PLANS AND SPECIFICATIONS, ALL WOOD TRUSS WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MATERIAL CODES LISTED IN SECTION 0.1.1
10.2 TRUSS FABRICATOR SHALL PROVIDE THE FOLLOWING INFORMATION IN THEIR TRUSS SUBMITTAL PACKAGE TO BE REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER OF RECORD:
10.2.1 INDIVIDUAL TRUSS CUT SHEETS CONTAINING:
SLOPE, DEPTH, SPAN, AND SPACING
LOCATION OF ALL JOINTS AND SUPPORTS
NUMBER OF TRUSS PLIES
REQUIRED BEARING WIDTH
DESIGN LOADS USED, ADJUSTMENT FACTORS, MAXIMUM REACTIONS
SIZE, SPECIES AND GRADE OF EACH MEMBER
TRUSS DEFLECTION LIMITS
AXIAL TENSION AND COMPRESSION OF EACH MEMBER
REQUIRED PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT LOCATION AND METHOD.
10.2.2 TRUSS PLACEMENT PLAN
10.3 TEMPORARY AND PERMANENT TRUSS LATERAL BRACING IN CLEAR SPANS 60' AND GREATER ARE REQUIRED TO BE DESIGNED BY A REGISTERED DESIGN PROFESSIONAL. THE OWNER IS TO CONTRACT WITH A REGISTERED DESIGN PROFESSIONAL FOR THE DESIGN OF THE FOLLOWING BRACING REQUIREMENTS:
10.3.1 TEMPORARY AND PERMANENT TRUSS LATERAL BRACING FOR ALL LENGTHS SHALL CONFORM AS A MINIMUM TO THOSE REQUIRED IN THE BCSI AND TPI REQUIREMENTS.
10.3.2 INSTALLATION OF TEMPORARY BRACING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SHALL CONFORM TO THE BCSI AND TPI STANDARDS.
10.4 LOADS ON TRUSSES DURING CONSTRUCTION SHALL BE MAINTAINED BELOW THOSE LISTED IN SECTION 0.2.1 AND 0.2.2. MATERIAL SHALL NOT BE STACKED ON INADEQUATELY BRACED TRUSSES.
10.5 DO NOT CUT OR ALTER TRUSSES WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD AND THE TRUSS FABRICATOR.
10.6 TRUSS FABRICATOR TO PROVIDE CALCULATIONS AND SHOP DRAWINGS SHALL BE STAMPED BY AN ENGINEER HAVING JURISDICTION AT PROJECT LOCATION.

Table with 2 columns: SHEET NUMBER, SHEET NAME. Rows include S001 GENERAL NOTES, S100 FOUNDATION PLAN, S101 FRAMING PLAN, S102 ROOF FRAMING PLAN, S300 FOUNDATION DETAILS, S500 FRAMING DETAILS, S501 FRAMING DETAILS, S502 FRAMING DETAILS.

606 14TH AVE. SW
CEDAR RAPIDS, IA 52404
319-365-1150

2435 KIMBERLY RD.
SUITE 2405
BETTENDORF, IA 52722
563-359-3117

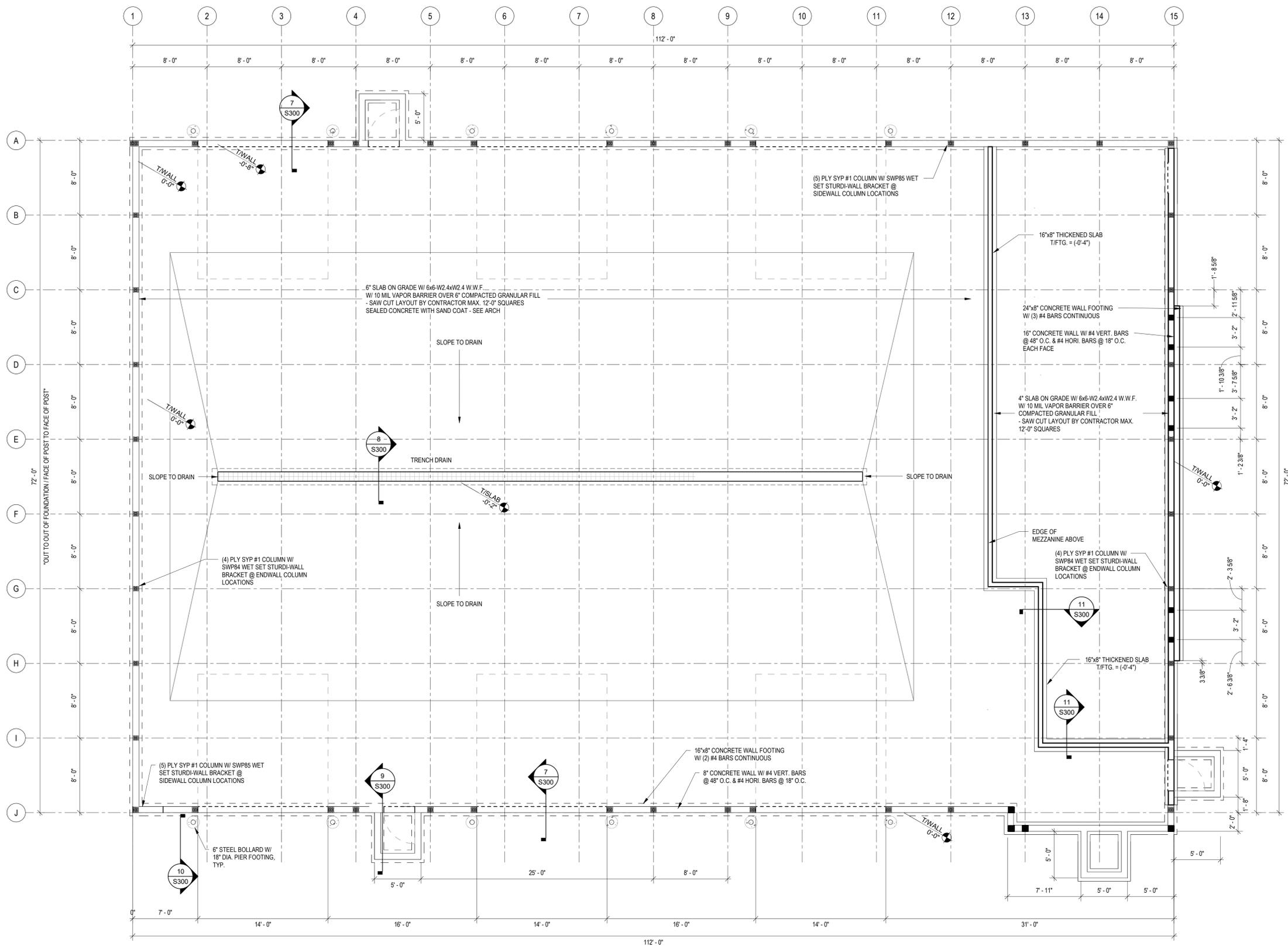


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TIFFIN, IA 52340
ENCITE ARCHITECTURE & DESIGN, LLC
SHEET TITLE
GENERAL NOTES

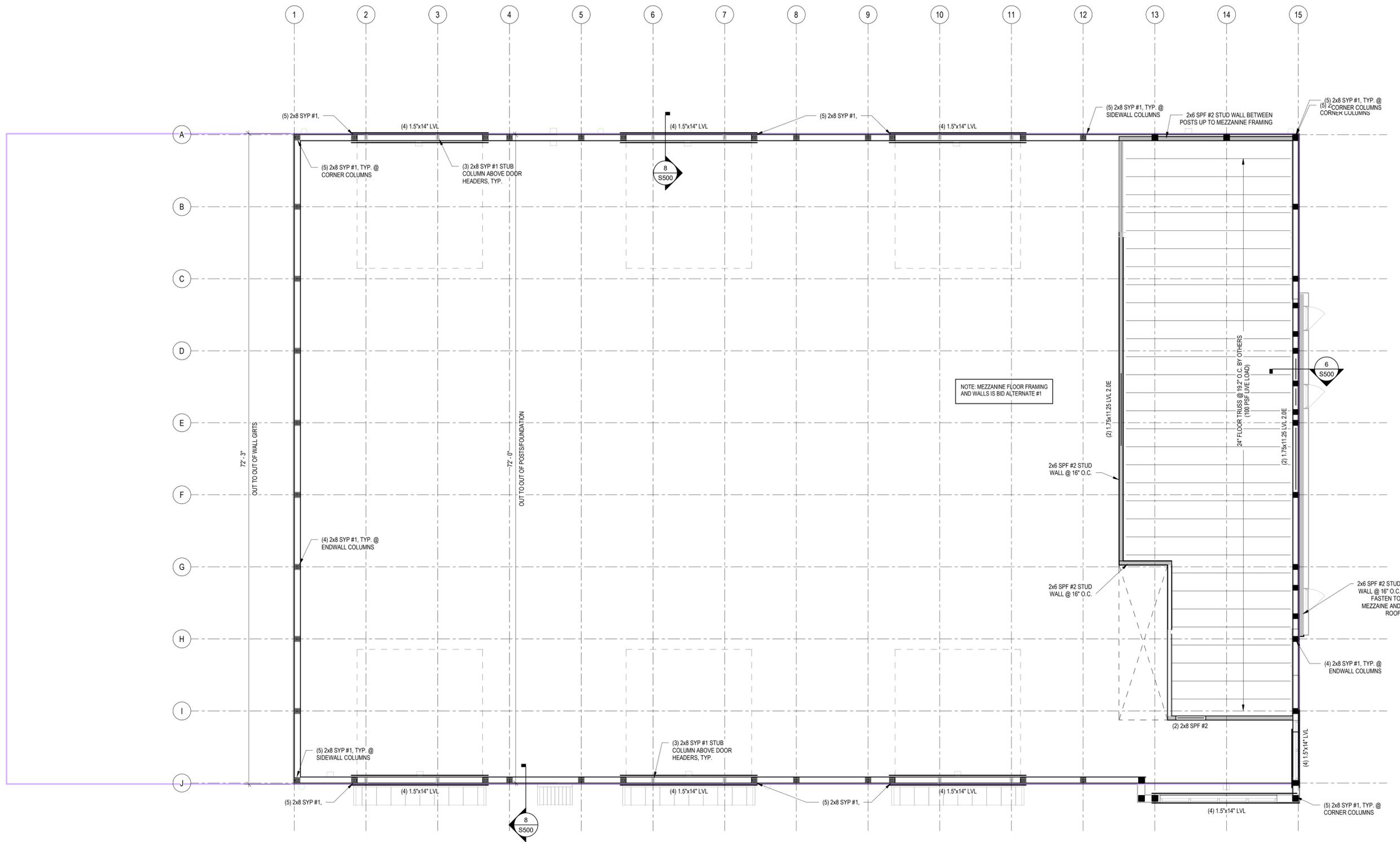
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JOB NO: 25-370

PAGE NO.
S001



1 FOUNDATION PLAN
SCALE: 3/16" = 1'-0"

SPREAD FOOTING SCHEDULE				
MARK	LENGTH	WIDTH	THICKNESS	REINFORCING



1 FRAMING PLAN
SCALE: 3/16" = 1'-0"



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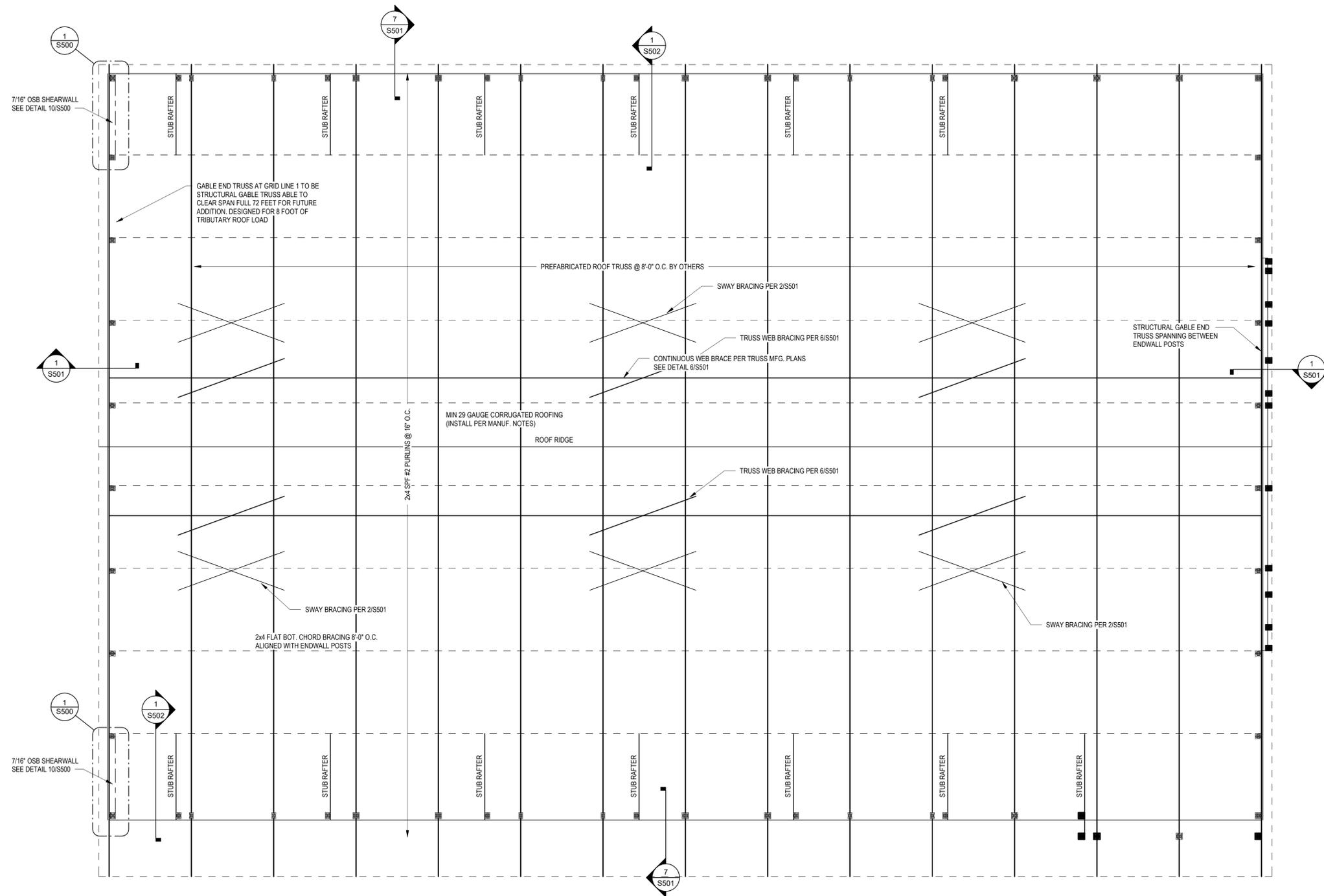
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ROOF FRAMING PLAN

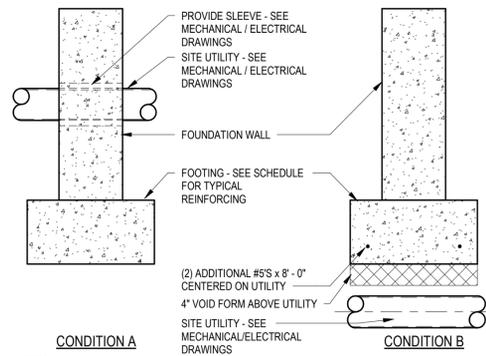
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S102

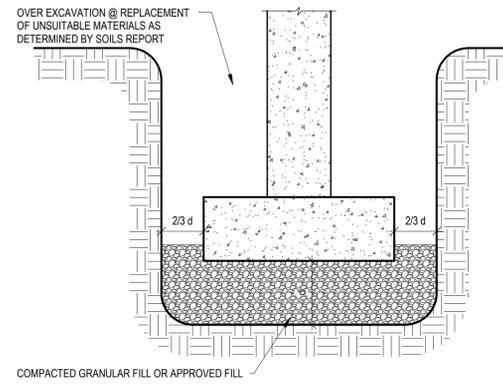


1 ROOF FRAMING PLAN
SCALE: 3/16" = 1'-0"

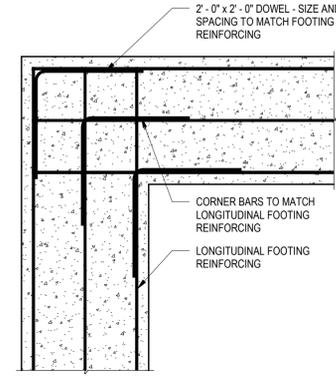


- CONDITION A**
- CONDITION B**
- NOTES:**
1. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL LOCATIONS, ELEVATIONS, ETC., OF SITE UTILITIES
 2. DETAIL REQUIRED AT ALL UTILITIES HAVING A PLAN WIDTH UP TO 3'-0". FOR WIDTHS GREATER THAN 3'-0", SEE PLAN FOR REQUIRED DETAIL.
 3. CONDITION B DOES NOT APPLY AT SPREAD FOOTING SITUATIONS. GENERAL CONTRACTOR SHALL NOTIFY ENGINEER SHOULD SUCH A CONDITION ARISE AND AWAIT FURTHER INSTRUCTIONS.

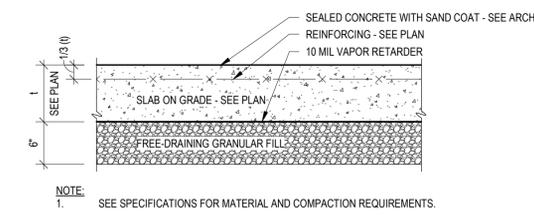
1 CONCRETE FOUNDATION DETAILS AT SITE UTILITIES
SCALE: 3/4" = 1'-0"



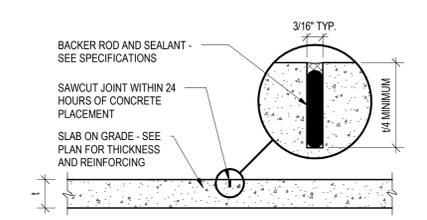
2 TYPICAL OVEREXCAVATION & BACKFILL DETAIL
SCALE: 3/4" = 1'-0"



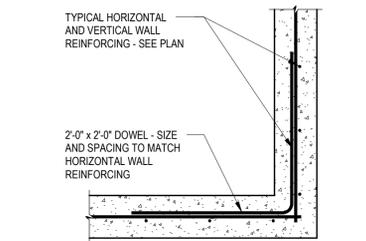
3 CONCRETE FOOTING CORNER BARS
SCALE: 3/4" = 1'-0"



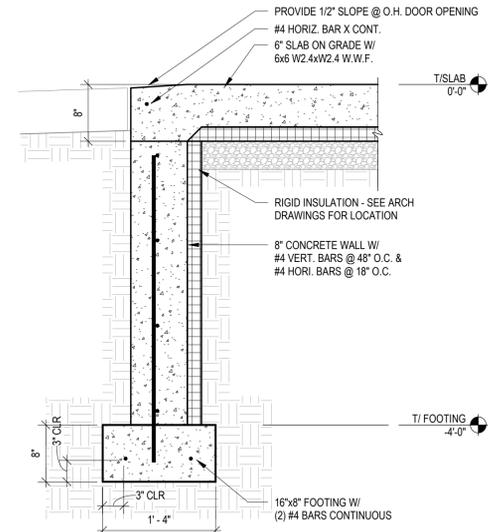
4 CONCRETE SLAB ON GRADE SECTION
SCALE: 1" = 1'-0"



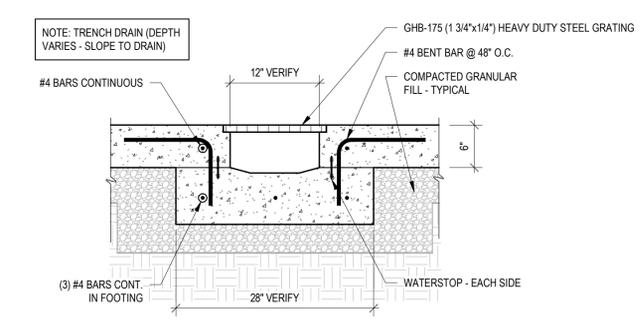
5 CONCRETE SLAB ON GRADE CONTROL JOINT
SCALE: 1" = 1'-0"



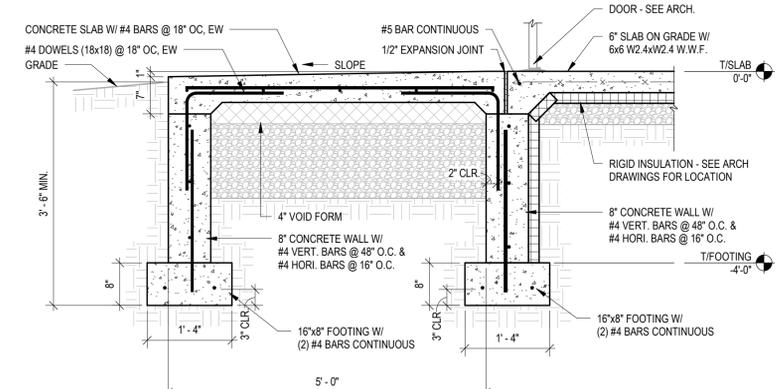
6 CONCRETE WALL CORNER DETAIL
SCALE: 3/4" = 1'-0"



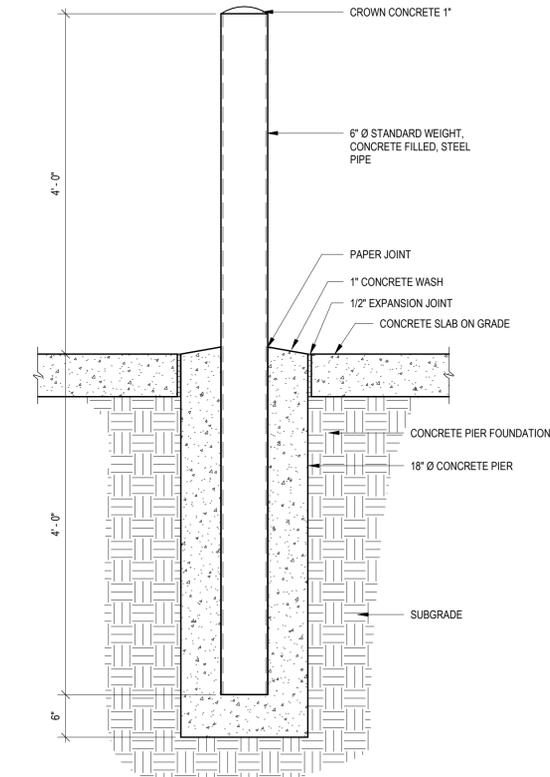
7 CONCRETE FOUNDATION WALL DETAIL @ OVERHEAD DOOR
SCALE: 1" = 1'-0"



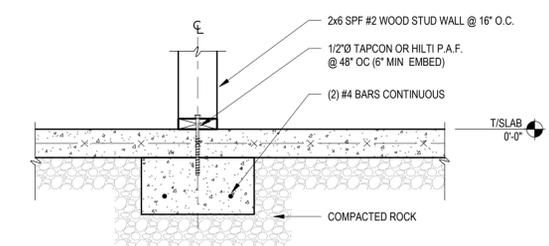
8 CONCRETE TRENCH DRAIN DETAIL
SCALE: 1" = 1'-0"



9 CONCRETE STOOP SECTION
SCALE: 3/4" = 1'-0"

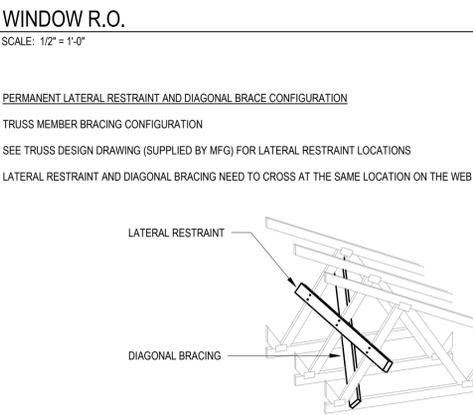
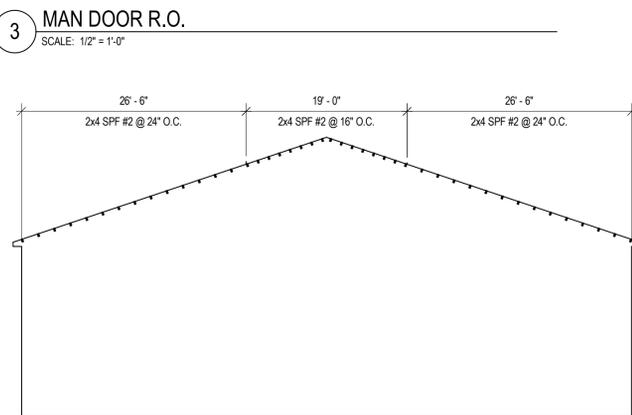
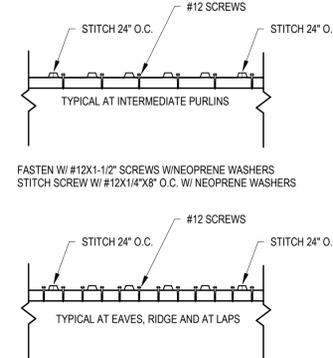
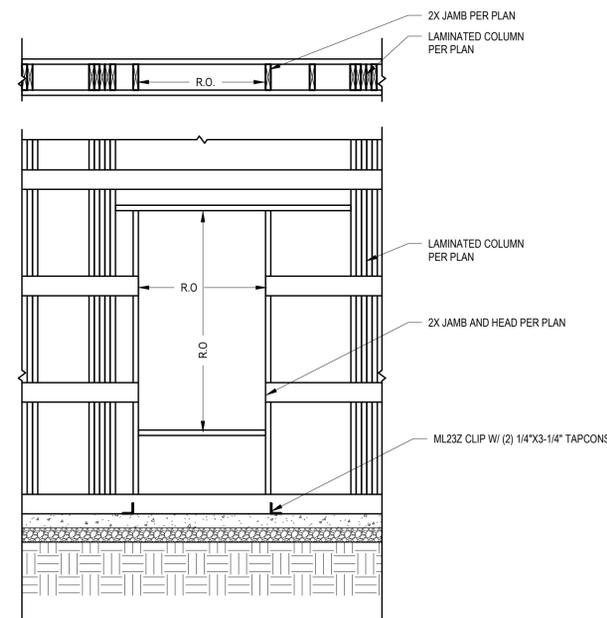
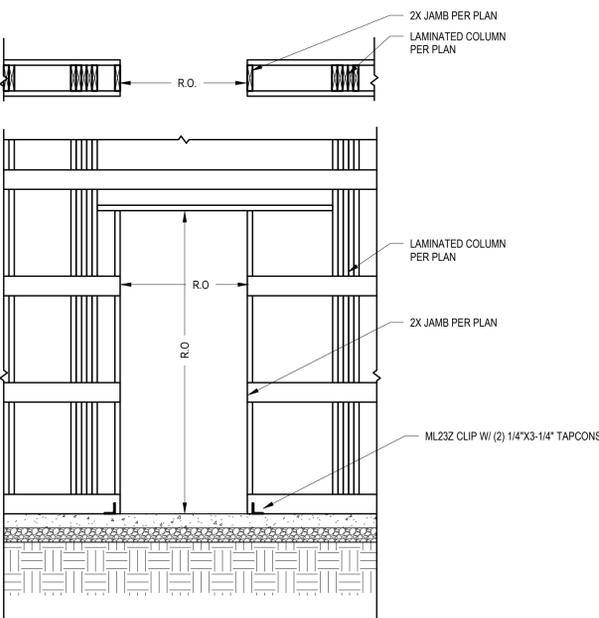
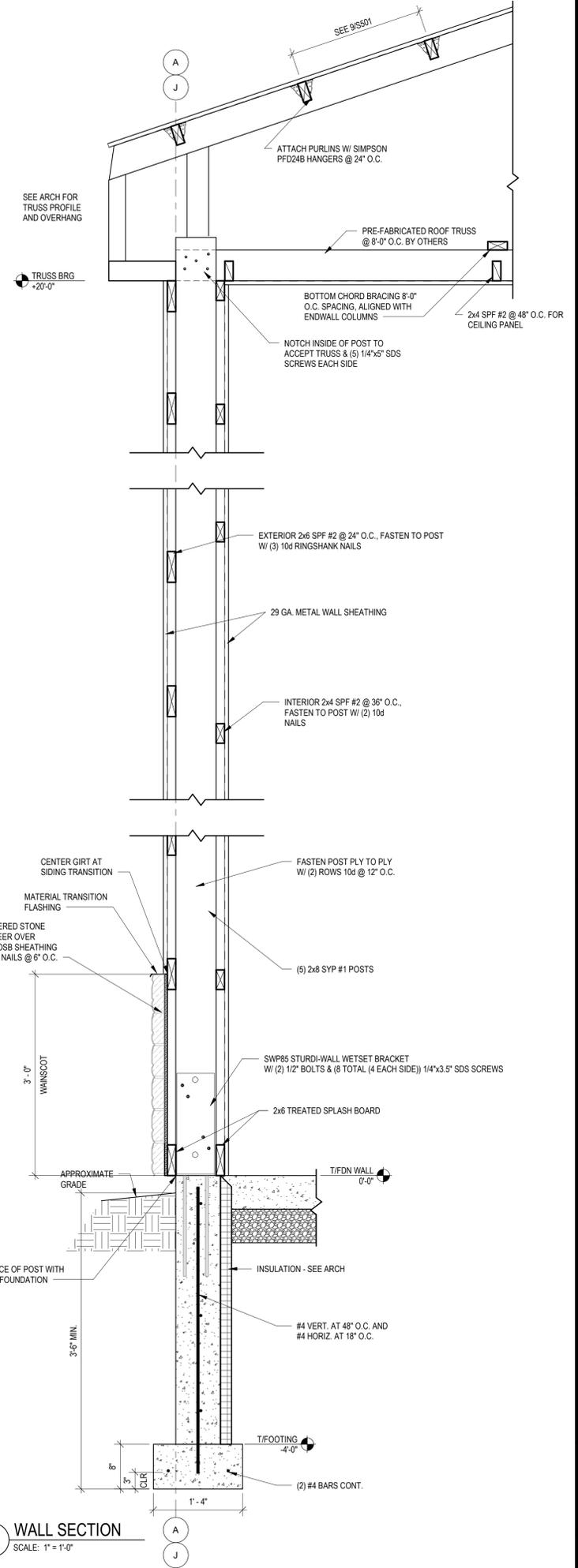
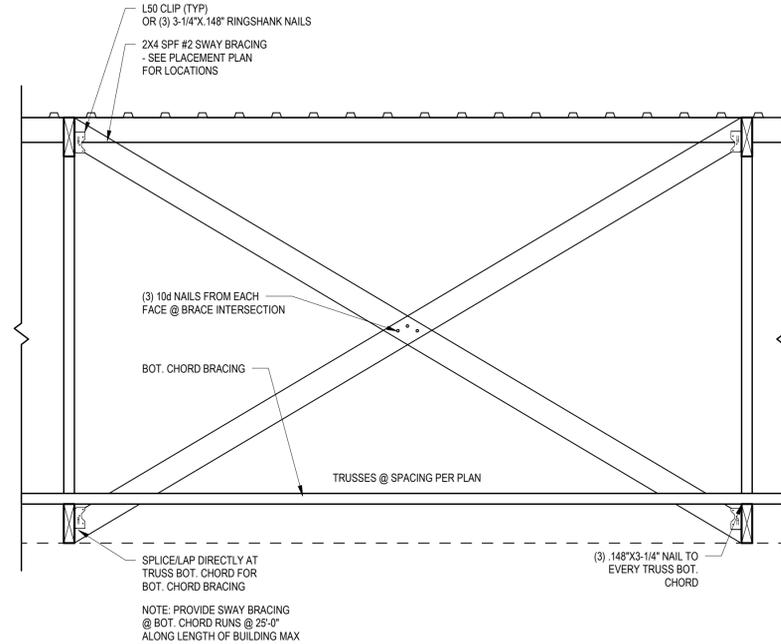
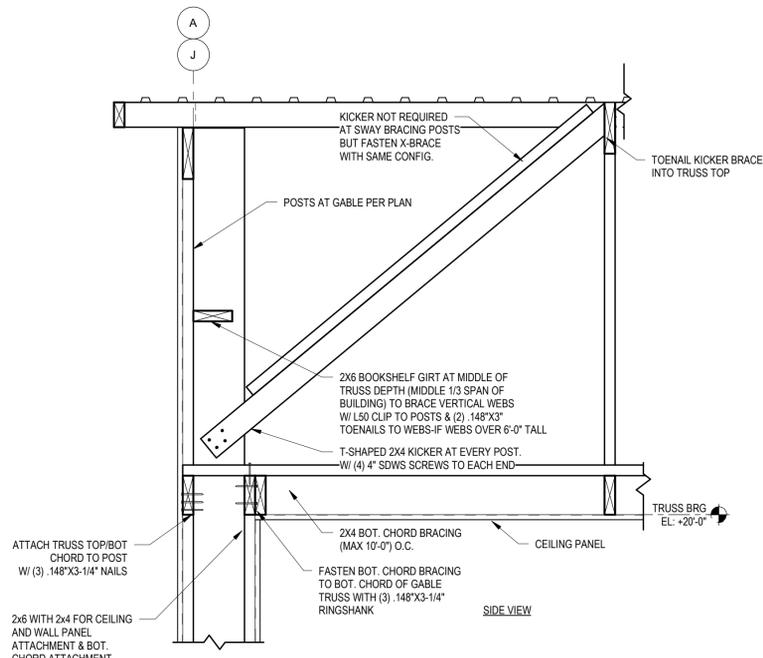


10 TYPICAL PIPE BOLLARD DETAIL
SCALE: 1" = 1'-0"



11 CONCRETE THICKENED SLAB DETAIL @ WOOD WALL
SCALE: 1" = 1'-0"

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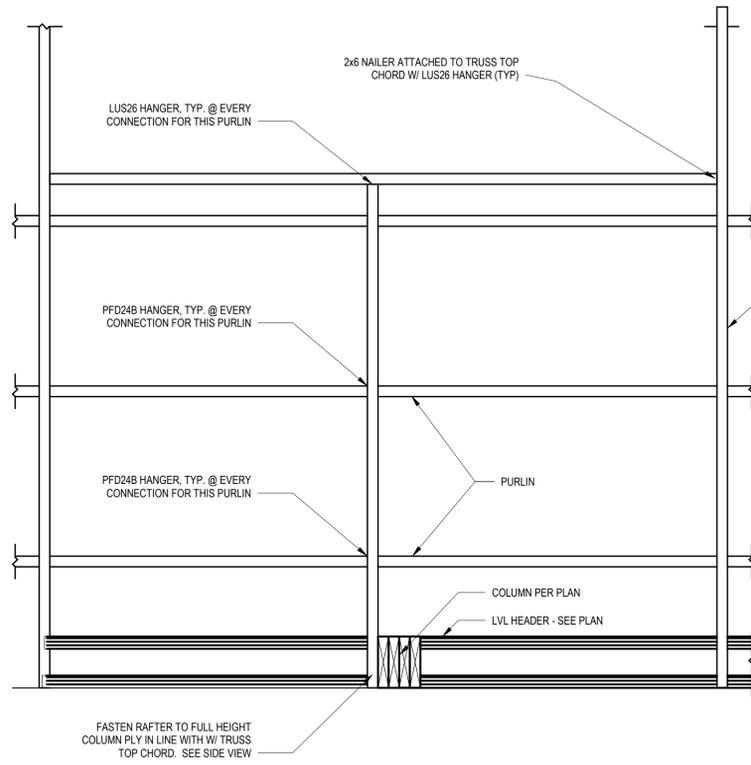
NOTES:

TEMPORARY BRACING:
CONTRACTOR SHALL BE RESPONSIBLE FOR AND INSTALL TEMPORARY BRACING ON TRUSSES, WALLS AND SUPPORTS AS REQUIRED DURING BUILDING CONSTRUCTION.

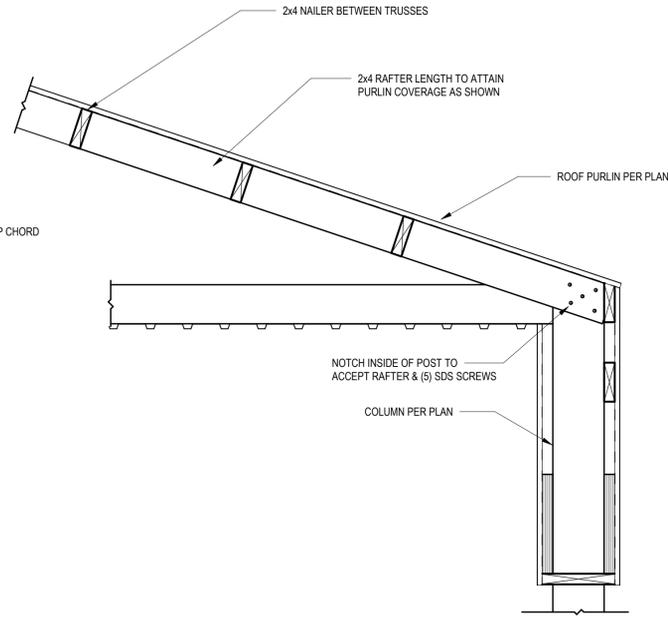
PERMANENT TRUSS BRACING:
PERMANENT TRUSS BRACING IS ALWAYS REQUIRED. THIS SET OF STRUCTURAL DRAWINGS DOES NOT SPECIFY SPECIFIC PERMANENT TRUSS BRACING CONFIGURATIONS.

BRACING INFORMATION:
REFERENCE SBCA/TPI BUILDING COMPONENT SAFETY INFORMATION (BCSI) BOOKLET IN CONJUNCTION WITH THE BRACING INFORMATION DEPICTED IN THE MANUFACTURED TRUSS DRAWINGS FOR REQUIRED PERMANENT TRUSS BRACING CONFIGURATIONS.

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TOP VIEW



SIDE VIEW

1 STUB RAFTER TOP OF COLUMN SUPPORT

SCALE: 1" = 1'-0"

REVISIONS

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JOHNSON COUNTY EMA STORAGE

2000 BAILEY WAY
TIFFIN, IA 52340

ENCITE ARCHITECTURE & DESIGN, LLC

SHEET TITLE
FRAMING DETAILS

DRAWN BY: BTS
CHECKED BY: MDM
APPROVED BY: EPD
JOB DATE: 01.20.26
JOB NO: 25-370

PAGE NO.
S502

GENERAL MECHANICAL REQUIREMENTS

- 1.1 SCOPE
A. THE WORK OF THIS DIVISION CONSISTS OF PROVIDING LABOR, MATERIALS, PRODUCTS, AND IN PERFORMING ALL OPERATIONS REQUIRED FOR THE COMPLETE OPERATING INSTALLATION OF ALL MECHANICAL AND PLUMBING SYSTEMS IN ACCORDANCE WITH THE SPECIFICATIONS AS WELL AS APPLICABLE DRAWINGS, TERMS, CONDITIONS OF THE CONTRACT AND ALL APPLICABLE CODES AND ORDINANCES GOVERNING THE INSTALLATION OF THE VARIOUS MECHANICAL AND PLUMBING SYSTEMS. ALL WORK SHALL BE FULLY CORRELATED WITH THE WORK OF OTHER TRADES.
B. EACH CONTRACTOR SHALL STUDY THE CONTRACT DOCUMENTS TO DETERMINE THE EXTENT OF WORK PROVIDED UNDER THIS CONTRACT AS WELL AS ASCERTAIN THE DIFFICULTY TO BE ENCOUNTERED IN PERFORMING THE WORK ON THE DRAWINGS AND OUTLINED HEREINAFTER AND IN MAKING CONNECTIONS TO EXISTING UTILITIES, INSTALLING NEW EQUIPMENT AND SYSTEMS AND COORDINATING THE WORK WITH THE OTHER TRADES.
C. EXAMINATION OF THE SITE: THE CONTRACTOR SHALL THOROUGHLY EXAMINE SITE AND SATISFY HIMSELF AS THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL VERIFY, AT THE SITE, ALL MEASUREMENTS AFFECTING HIS WORK AND SHALL BE RESPONSIBLE FOR THE CORRECTNESS OF THE SAME. NO EXTRA COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR EXPENSES DUE TO HIS NEGLIGENCE TO EXAMINE OR FAILURE TO DISCOVER CONDITIONS WHICH AFFECT HIS WORK. NO EXTRA COMPENSATION WILL BE ALLOWED ON ACCOUNT OF DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND THOSE INDICATED ON THE DRAWINGS.

- 1.2 REGULATORY REQUIREMENTS
A. CODES AND ORDINANCES/PERMIT AND FEES: PERFORM ALL WORK IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINANCES, THE CURRENT EDITION OF NFPA, THE INTERNATIONAL BUILDING CODE, INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, AND ALL CURRENT SUPPLEMENTS THERETO, AND ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK. PROCURE AND PAY FOR ALL PERMITS, LICENSES, FEES AND CHARGES, AND GIVE ALL NOTICES NECESSARY.
B. IN CASE OF CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND REQUIREMENTS OF ANY CODE OR AUTHORITIES HAVING JURISDICTION, THE MOST STRINGENT REQUIREMENTS OF THE AFOREMENTIONED SHALL BE GOVERNED.
C. SHOULD THE CONTRACTOR PERFORM ANY WORK THAT DOES NOT COMPLY WITH THE REQUIREMENTS OF THE APPLICABLE BUILDING CODES, STATE LAWS, AND LOCAL ORDINANCES AND INDUSTRY STANDARDS, HE SHALL BEAR ALL COSTS ARISING IN CORRECTING THE DEFICIENCIES, AS APPROVED BY THE ARCHITECT.
D. INTENT: THE DRAWINGS SHOW GENERAL ARRANGEMENTS AND THE EXTENT OF THE WORK. THE DRAWINGS DO NOT SHOW, IN MINUTE DETAIL, ALL FEATURES OF THE INSTALLATION. FOLLOW THE DRAWINGS AS CLOSELY AS ACTUAL CONSTRUCTION WILL PERMIT. ALL MATERIAL AND LABOR NECESSARY TO COMPLETE THE WORK IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND DRAWINGS SHALL BE FURNISHED BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGE. THE JOB SHALL BE BID AND INSTALLED COMPLETE AND CONSISTENT IN EVERY REQUEST.

- 1.3 COORDINATION OF WORK
A. EACH CONTRACTOR SHALL COMPARE HIS DRAWINGS AND SPECIFICATIONS WITH THOSE OF OTHER TRADES. ALL WORK SHALL BE INSTALLED IN COOPERATION WITH ALL OTHER TRADES INSTALLING INTERRELATED WORK. BEFORE INSTALLATION, ALL TRADES SHALL MAKE PROPER PROVISIONS TO AVOID INTERFERENCES.
B. EACH CONTRACTOR SHALL COORDINATE THE LOCATION OF HIS SYSTEMS TO THAT ALL OUTSIDE AIR INTAKES, PLUMBING VENTS, AND EXHAUST FANS ARE LOCATED IN SUCH A WAY AS TO PREVENT CROSS-CONTAMINATION. SUCH A DISTANCE SHALL BE NOT LESS THAN 10'-0"FT.
C. LOCATIONS OF CONDUIT, DUCTS, PIPING, SPRINKLER HEADS AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE THE WORK WITH INTERFERENCES ANTICIPATED AND ENCOUNTERED. EXACT ROUTING AND LOCATION OF SYSTEMS SHALL BE DETERMINED PRIOR TO FABRICATION OR INSTALLATION.
D. OFFSETS AND CHANGES OF DIRECTION IN ALL CONDUIT, DUCTS AND PIPING SYSTEMS SHALL BE MADE AS REQUIRED TO MAINTAIN PROPER HEADROOM AND PITCH OF SLOPING LINES.

- 1.4 REGULATORY REQUIREMENTS
A. COMPLY WITH ALL CURRENT LOCAL, STATE, AND NATIONAL CODES, INCLUDING THE AMERICANS WITH DISABILITIES ACT (MOST CURRENT EDITION) AND SECURE AND PAY FOR ALL APPLICABLE COSTS, FEES, PERMITS AND LICENSES. NO ADDITIONAL COSTS SHALL BE PAID BY THE OWNER FOR THESE ITEMS.
B. PERFORM ALL WORK WITH HIGHEST REGARD TO SAFETY. EXCAVATE BY HAND AND WITH CAUTION TO LOCATE ALL UTILITIES IN THE BOUNDS OF THE AREA TO BE EXCAVATED PRIOR TO MACHINE EXCAVATING. PROCEED WITH SAFETY AND CAUTION SO THAT NO UTILITY IS DAMAGED OR INTERRUPTED.
C. PRIOR TO BID, VERIFY AND COORDINATE ALL REQUIRED CONNECTIONS AND/OR RELOCATIONS OF UTILITIES WITH UTILITY COMPANIES. PERFORM SUCH WORK IN ACCORDANCE WITH UTILITY COMPANY REGULATIONS. PAY ALL APPLICABLE FEES AND COSTS INCLUDING THOSE FOR ANY EXTENSIONS, RELOCATIONS AND/OR CONNECTIONS.
D. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ABOVE GROUND AND MARKED UTILITIES.

- 1.5 SUBMITTALS
A. SUBMITTALS SHALL BE COMPLETE FOR SYSTEM(S) INVOLVED. PROVIDE SUBMITTALS FOR ALL HVAC EQUIPMENT.
B. WHERE EQUIPMENT OF THE ACCEPTABLE MANUFACTURERS REQUIRE DIFFERENT ARRANGEMENT OR CONNECTIONS FROM THOSE SHOWN, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL THE EQUIPMENT TO OPERATE PROPERLY AND IN HARMONY WITH THE ORIGINAL INTENT OF THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL MAKE ALL NECESSARY CHANGES IN ALL AFFECTED RELATED WORK PROVIDED UNDER OTHER SECTIONS INCLUDING LOCATIONS OF ROUGH-IN CONNECTIONS BY OTHER TRADES, CONDUIT SUPPORTS, INSULATION, ETC. ALL CHANGES SHALL BE MADE AT NO INCREASE IN THE CONTRACT AMOUNT OR ADDITIONAL COSTS TO THE OTHER TRADES AND/OR OWNER.

- 1.6 GUARANTEE
A. ALL EQUIPMENT AND WORK SHALL BE GUARANTEED FOR A PERIOD OF 12 MONTHS AFTER ACCEPTANCE. ANY DEFECTS IN EQUIPMENT OR WORKMANSHIP SHALL BE PROMPTLY REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT ADDITIONAL EXPENSE TO THE OWNER. THE GUARANTEE PERIOD OF ANY PART OF THE REPAIRED ITEMS SHALL BE EXTENDED FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUCH REPAIR OR REPLACEMENT.

- 1.7 COMPLETION
A. UPON COMPLETION OF THE MECHANICAL INSTALLATION, DEMONSTRATE TO THE OWNER'S SATISFACTION THAT THE SYSTEMS HAVE BEEN INSTALLED IN A SATISFACTORY MANNER IN ACCORDANCE WITH THE PLANS AND APPLICABLE CODES. SHOW THAT ALL CONTROLS ARE OPERABLE AND ARE PROPERLY ADJUSTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE FINAL SYSTEMS BALANCE, THAT ALL SYSTEMS ARE PROPERLY BALANCED, THAT ALL EQUIPMENT OPERATES PROPERLY, THAT FILTERS AND STRAINERS ARE CLEAN, AND THAT ALL COMPONENTS OF ALL SYSTEMS ARE INSTALLED AND ADJUSTED FOR PROPER OPERATION.

- PRODUCTS
2.1 GENERAL
A. ALL MATERIALS SHALL BE NEW AND OF THE QUALITY SPECIFIED. MATERIALS SHALL BE FREE FROM DEFECTS. MANUFACTURERS SHALL BE AS SPECIFIED HEREIN, OR BY ADDENDA. ALL PIPING EQUIPMENT, ETC., WHICH NEEDS TO BE INSULATED TO CONSERVE HEAT OR COLD, OR TO PREVENT FREEZING OR CONDENSATION, SHALL BE INSULATED. ALL MATERIALS SHALL HAVE THE UNDERWRITERS LABORATORIES, INC. LABEL.

BASIC MECHANICAL METHODS

- 1.1 DIMENSION AND FIT
A. CUT MATERIALS ACCURATELY FROM MEASUREMENTS TAKEN ON THE JOB SITE.
B. DO NOT SPRING OR BEND PIPE TO FIT CONDITIONS OR MAKE UP JOINTS

- 1.2 SERVICEABILITY OF PRODUCTS
A. FURNISH ALL PRODUCTS TO PROVIDE THE PROPER ORIENTATION OF SERVICEABLE COMPONENTS TO ACCESS SPACE PROVIDED.
B. COORDINATE INSTALLATION OF PIPING, DUCTWORK, EQUIPMENT, SYSTEM COMPONENTS, AND OTHER PRODUCTS TO ALLOW PROPER SERVICE OF ALL ITEMS REQUIRING PERIODIC MAINTENANCE OR REPLACEMENT.
C. REPLACE OR RELOCATE ALL PRODUCTS INCORRECTLY ORDERED OR INSTALLED TO PROVIDE PROPER SERVICEABILITY.
D. PROVIDE ACCESS DOORS AND ACCESS PANELS IN CEILINGS, WALLS, FLOORS, ETC. FOR ACCESS TO TRAPS, VALVES, PRIMERS, DAMPERS, AUTOMATIC DEVICES, AND ALL SERVICEABLE OR OPERABLE EQUIPMENT IN CONCEALED SPACES.
E. PROVIDE VIBRATION ISOLATORS ON ALL EQUIPMENT HAVING MOTORS AND SUPPORTED BY THE BUILDINGS STRUCTURE.

- 1.3 ROUTING
A. ROUTE ALL PIPELINES AND DUCTWORK PARALLEL WITH BUILDINGS LINES AND AS HIGH AS POSSIBLE.
B. ROUTE PIPING AND DUCTS TO CLEAR ALL DOORS, WINDOWS, AND OTHER OPENINGS AND TO AVOID ALL OTHER PIPES AND DUCTS, LIGHT FIXTURES AND SIMILAR PRODUCTS.
C. PROVIDE UNIONS ADJACENT TO ALL EQUIPMENT AND WHERE REQUIRED FOR DISCONNECT AND MAINTENANCE OF EQUIPMENT.
D. SECURELY FASTEN ALL MECHANICAL/PLUMBING WORK TO THE STRUCTURE TO PREVENT HAZARD HUMAN LIFE AND LIMB, AND TO PREVENT DAMAGE TO PRODUCTS OF CONSTRUCTION UNDER ALL CONDITIONS OF OPERATION.
E. DO ALL SLEEVING, CUTTING, AND PATCHING OF ROUGH CONSTRUCTION FOR PIPING. ALL CUTTING, REPAIRING AND REQUIRED STRUCTURAL REINFORCING FOR INSTALLATION OF THIS WORK SHALL BE DONE IN CONFORMANCE WITH ARCHITECT'S DIRECTIONS AND ANY DAMAGE CAUSED BY CUTTING SHALL BE REPAIRED EQUAL TO ORIGINAL CONDITIONS. NO CUTTING WITHOUT ARCHITECT'S APPROVAL.
F. PLACE ANY SLEEVES, CHASES, CONCRETE INSERTS, ANCHOR BOLTS, ETC., BEFORE CONCRETE IS POURED, AND BE RESPONSIBLE FOR CORRECT LOCATION AND INSTALLATION OF THESE ITEMS.

VIBRATION AND SEISMIC CONTROL FOR HVAC PIPING AND EQUIPMENT

- 1.1 PERFORMANCE REQUIREMENTS
A. SEISMIC-RESTRAINT LOADING:
a. SITE CLASS AS DEFINED IN THE IBC. AS REQUIRED BY LOCAL JURISDICTION.
b. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC. AS REQUIRED BY LOCAL JURISDICTION.
c. DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND).
d. DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIOD.

- 1.2 COMPONENTS:

- A. VIBRATION ISOLATORS:
a. ISOLATOR PADS: NEOPRENE.
b. MOUNTS: DOUBLE-DEFLECTION TYPE.
c. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.
d. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN-SPRING TYPE.
e. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.
f. HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.
g. ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.
h. SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.
i. SPRING HANGERS WITH VERTICAL-LIMIT STOP: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL-LIMIT STOP.
j. PIPE RISER RESILIENT SUPPORT: ALL-DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.
k. RESILIENT PIPE GUIDES.
B. AIR-MOUNTING SYSTEMS:
a. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOWES.
b. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOWES.
C. RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.
D. VIBRATION ISOLATION EQUIPMENT BASES:
a. STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.
b. INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE.
E. SEISMIC-RESTRAINT DEVICES:
a. SNUBBERS: WELDED STRUCTURAL-STEEL SHAPES AND REPLACEABLE RESILIENT ISOLATION WASHERS AND BUSHINGS.
b. CHANNEL SUPPORT SYSTEM: MFMA-3 SLOTTED STEEL CHANNELS.
c. RESTRAINT CABLES: STAINLESS-STEEL CABLES.
d. ANCHOR BOLTS: MECHANICAL TYPE, SEISMIC RATED.
e. RESILIENT ISOLATION WASHERS AND BUSHINGS: MOLDED NEOPRENE.

- 1.3 FIELD QUALITY CONTROL
A. TESTING: BY CONTRACTOR.

AIR DISTRIBUTION

- 1.1 FILTERS
A. MANUFACTURERS: AAF OR APPROVED EQUIVALENT.
a. PLEATED FILTERS MERV-8, OR AS NOTED ON THE DRAWINGS.

- 1.2 DUCTWORK

- A. MATERIALS:
a. STEEL DUCTS: GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, MINIMUM GAUGE PER SMACNA STANDARDS.
b. INSULATED FLEXIBLE DUCTS: FLEXIBLE DUCT WRAPPED WITH FLEXIBLE GLASS FIBER INSULATION, ENCLOSED BY METALIZED VAPOR BARRIER JACKET.
c. SEALANT: NON-HARDENING, WATER RESISTANT, FIRE RESISTIVE, USED ALONE OR WITH TAPE.
B. METAL DUCTWORK:
a. FABRICATE AND SUPPORT IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE EXCEPT AS INDICATED.
b. CONSTRUCT T'S, BENDS, AND ELBOWS WITH RADIUS OF 1-1/2 TIMES WIDTH OF DUCT ON CENTER LINE, WHERE NOT POSSIBLE PROVIDE TURNING VANES.
c. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 30 DEGREES DIVERGENCE AND 45 DEGREES CONVERGENCE.
d. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH DRAW BANDS
e. USE CRIMP JOINTS WITH OR WITHOUT BEAD FOR JOINING ROUND DUCT SIZES 8 INCHES AND SMALLER WITH CRIMP IN DIRECTION OF AIR FLOW.
f. DUCT SCHEDULE:
f.a. SUPPLY DUCTS CONNECTED TO CONSTANT-VOLUME AIR-HANDLING UNITS, SINGLE ZONE VARIABLE-VOLUME AIR-HANDLING UNITS, AND SECONDARY DUCTWORK AFTER TERMINAL UNITS:
f.a.a. PRESSURE CLASS: POSITIVE 2-INCH WG.
f.a.b. MINIMUM SMACNA SEAL CLASS: B
f.a.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
f.a.d. SMACNA LEAKAGE CLASS FOR ROUND: 12
f.b. SUPPLY DUCTS CONNECTED TO VARIABLE-VOLUME AIR-HANDLING UNITS:
f.b.a. PRESSURE CLASS: POSITIVE 4-INCH WG.
f.b.b. MINIMUM SMACNA SEAL CLASS: B
f.b.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 6
f.b.d. SMACNA LEAKAGE CLASS FOR ROUND: 6
f.c. RETURN DUCTS CONNECTED TO VARIABLE AND CONSTANT-VOLUME AIR-HANDLING UNITS:
f.c.a. PRESSURE CLASS: POSITIVE OR NEGATIVE 2-INCH WG.
f.c.b. MINIMUM SMACNA SEAL CLASS: B
f.c.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
f.c.d. SMACNA LEAKAGE CLASS FOR ROUND: 12
f.d. EXHAUST DUCTS
f.d.a. PRESSURE CLASS: POSITIVE OR NEGATIVE 2-INCH WG.
f.d.b. MINIMUM SMACNA SEAL CLASS: B IF NEGATIVE, A IF POSITIVE
f.d.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
f.d.d. SMACNA LEAKAGE CLASS FOR ROUND: 6
f.e. OUTSIDE AIR DUCTS:
f.e.a. PRESSURE CLASS: POSITIVE OR NEGATIVE 2-INCH WG.
f.e.b. MINIMUM SMACNA SEAL CLASS: B
f.e.c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 12
f.e.d. SMACNA LEAKAGE CLASS FOR ROUND: 12
g. SEISMIC-RESTRAINT DEVICES
1. CHANNEL SUPPORT SYSTEM.
2. GALVANIZED STEEL RESTRAINT CABLES.
3. HANGER ROD STIFFENER: STEEL TUBE OR STEEL SLOTTED-SUPPORT-SYSTEM SLEEVE WITH INTERNALLY BOLTED CONNECTIONS OR REINFORCING STEEL ANGLE CLAMPED TO HANGER ROD.

- 1.3 VOLUME CONTROL DAMPERS
C. PROVIDE ALL BRANCHES AND DUCT TAKE-OFFS, FABRICATE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, AND AS INDICATED.
D. FABRICATE SPLITTER DAMPERS OF MATERIAL SAME GAGE AS DUCT TO 24 INCHES SIZE. IN EITHER DIRECTION, OR TWO GAGES HEAVIER FOR LARGER SIZES. SECURE WITH CONTINUOUS HINGE OR ROD. OPERATE WITH MINIMUM 1/4 INCH DIAMETER ROD.
E. FABRICATE SINGLE BLADE DAMPERS FOR DUCT SIZES TO 12X30 INCH.
F. EXCEPT IN ROUND DUCTWORK 12 INCHES AND SMALLER, PROVIDE END BEARINGS.
G. PROVIDE LOCKING, INDICATING QUADRANT REGULATORS ON SINGLE AND MULTI-BLADE DAMPERS. WHERE WIDTH EXCEEDS 30 INCHES PROVIDE REGULATOR AT BOTH ENDS.

- 1.4 FLEXIBLE DUCT CONNECTIONS
A. UL LISTED FIRE-RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC TO NFPA 90, APPROXIMATELY 3 INCHES (75 MM) WIDE, CRIMPED INTO METAL EDGING STRIP.

- 1.5 AIR OUTLETS
A. MANUFACTURERS: PRICE, TITUS, TUTTLE AND BAILEY, KRUEGER, OR APPROVED EQUIVALENT.
B. DIFFUSERS/REGISTERS/GRILLES: PROVIDE AIR DEVICE TYPE, OPERATION, COLOR, ETC. AS SCHEDULED.

- 2.1 INSTALLATION
A. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. INSTALL FLEXIBLE CONNECTIONS SPECIFIED BETWEEN FAN INLET AND DISCHARGE DUCTWORK. FLEXIBLE CONNECTORS SHALL NOT BE IN TENSION WHILE RUNNING.
C. PROVIDE BACK DRAFT DAMPERS ON DISCHARGE OF EXHAUST FANS AND AS INDICATED.
D. PREVENT PASSAGE OF UNFILTERED AIR AROUND FILTERS WITH FELT, RUBBER, OR NEOPRENE GASKETS.
E. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.
F. PROVIDE FLEXIBLE CONNECTIONS IMMEDIATELY ADJACENT TO EQUIPMENT IN DUCTS ASSOCIATED WITH FANS AND MOTORIZED EQUIPMENT.
G. CHECK LOCATION OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM TO ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENTS.
H. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFF TO DIFFUSERS, AND GRILLES AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, OR GRILLE AND REGISTER ASSEMBLY.

MECHANICAL INSULATION

- 1.1 SCOPE

- A. GENERAL: FURNISH ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETE INSTALLATION OF THERMAL INSULATION ON ALL HOT AND COLD PIPING SURFACE AND DUCTWORK INSTALLED UNDER THIS CONTRACT WHICH REQUIRE INSULATIONS FOR HEAT OR COLD CONSERVATION: FREEZE PROTECTION, PREVENTION OF CONDENSATION OR DRIPPINGS; COMFORT FOR OCCUPANTS; EFFICIENCY OR

- BASE OF OPERATION. MECHANICAL INSULATION SHALL BE COMPLETE AND EFFECTIVE THROUGHOUT THE PROJECT.
B. SYSTEMS TO RECEIVE INSTALLATION INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO:
a. HYDRONIC WATER LINES (SUPPLY AND RETURN).
b. CONDENSATE DRAINAGE.
c. HORIZONTAL RAIN LEADERS AND ROOF DRAINS.
d. REFRIGERANT LINES (BOTH HIGH AND LOW PRESSURES).
e. PIPING ACCESSORIES AND SPECIALTIES.
f. DUCTWORK

- 1.2 PIPE INSULATION
A. ALL ABOVE GRADE INSULATION SHALL HAVE COMPOSITE (INSULATION, JACKET OR FACING, ALL ADHESIVE OR CEMENT USED TO ADHERE THE JACKET TO THE INSULATION) FIRE AND SMOKE HAZARD RATINGS AS TESTED UNDER PROCEDURE ASTM E-84 AND NFPA 225.
B. APPROVED MANUFACTURERS: CERTANEED, OWENS/CORNING, JOHNS-MANVILLE, UPIJOHN, ARMSTRONG, OR APPROVED EQUIVALENT.
C. LOCATE INSULATION AND COVER SEAMS IN LEAST VISIBLE LOCATIONS.
D. NEATLY FINISH INSULATION AT SUPPORTS, PROTRUSIONS, AND INTERRUPTIONS.
E. PROVIDE INSULATED DUAL TEMPERATURE PIPES OR COLD PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE WITH VAPOR BARRIER JACKETS. FINISH WITH GLASS CLOTH AND VAPOR BARRIER ADHESIVE. INSULATE COMPLETE SYSTEM.
F. FOR INSULATED PIPES CONVEYING FLUIDS ABOVE AMBIENT TEMPERATURE, PROVIDE STANDARD JACKETS. BEVEL AND SEAL ENDS OF INSULATION AT EQUIPMENT, FLANGES, AND UNIONS.
G. PROVIDE INSERT BETWEEN SUPPORT SHIELD AND PIPING ON PIPING 2 INCHES (50 MM) DIAMETER OR LARGER. FABRICATE OF CORK OR OTHER HEAVY DENSITY INSULATING MATERIAL SUITABLE FOR TEMPERATURE, NOT LESS THAN 6INCHES (150 MM) LONG.
H. SCHEDULE:
a. CONDENSATE DRAINS: 1" FLEXIBLE ELASTOMERIC. PROVIDE ALUMINUM JACKETING ON PIPING EXPOSED TO WEATHER.
b. REFRIGERANT LINES; 1" FLEXIBLE ELASTOMERIC. PROVIDE ALUMINUM JACKETING ON PIPING EXPOSED TO WEATHER.

- 1.3 DUCTWORK INSULATION
A. MANUFACTURERS: KNAUF, OR APPROVED EQUIVALENT.
B. FIBERGLASS BLANKET INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 563, TYPE II AND ASTM C 1290, TYPE III WITH FACTORY-APPLIED FSK JACKET. FACTORY-APPLIED JACKET REQUIREMENTS ARE SPECIFIED IN "FACTORY-APPLIED JACKETS" ARTICLE.
a. "K" (KS) VALUE: 0.29 AT 75 DEGREES F (0.042 AT 24 DEGREES C).
b. DENSITY: 0.75 LB/CU FT (24 KG/CU M).
c. VAPOR BARRIER JACKET: ALUMINUM-FOIL, FIBERGLASS-REINFORCED SCORM WITH KRAFT-PAPER BACKING; COMPLYING WITH ASTM C 1136, TYPE II.
C. INSULATION PINS AND HANGERS:
a. METAL ADHESIVELY ATTACHED, PERFORATED-BASE INSULATION HANGERS: BASEPLATE WELDED TO PROJECTING SPINDLE THAT IS CAPABLE OF HOLDING INSULATION. OF THICKNESS INDICATED, SECURELY IN POSITION INDICATED WHEN SELF-LOCKING WASHER IS IN PLACE. COMPLY WITH THE FOLLOWING REQUIREMENTS:
D. GLASS FIBER BLANKET INSULATION SCHEDULE (UNLESS SPECIFIED ON PLANS):
i. EXHAUST DUCTS EXPOSED TO OUTDOOR AIR: 1-1/2"
ii. VENTILATION DUCTS: 2"
iii. SUPPLY DUCTS: 2"
iv. RETURN DUCTS IN UNCONDITIONED SPACES: 1-1/2"

- 1.4 INSTALLATION
A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
B. CONTINUE INSULATION VAPOR BARRIER THROUGH PENETRATIONS.
C. MASTICS
a. MATERIALS SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES; COMPLY WITH MIL-PRF-19565C, TYPE II.
i. FOR INDOOR APPLICATIONS, USE MASTICS THAT HAVE A VOC CONTENT OF 50 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

SYSTEM TESTING, ADJUSTING, AND BALANCING

- A. TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT NEBB, OR A/B/C CONTRACTOR WHO IS CURRENTLY LICENSED. THE HVAC CONTRACTOR SHALL INSTALL NEW FILTERS IN ALL UNITS PRIOR TO THE AIR BALANCE. THE COMPLETE AIR BALANCE SHALL TAKE PLACE WITH OUTSIDE AIR DAMPERS IN MINIMUM POSITION.
B. BALANCE AIR AND WATER QUANTITIES TO WITHIN +/- 5% OF THAT INDICATED ON THE DRAWINGS. ANY REQUIRED CHANGES IN SHEAVES, BELTS, PULLEYS, OR THE ADDITION OF DAMPERS REQUIRED TO ACHIEVE SPECIFIED FLOW RATES SHALL BE PERFORMED BY THE HVAC CONTRACTOR WITH NO ADDITIONAL COST.
C. THE BALANCE REPORT SHALL INCLUDE AS A MINIMUM THE FOLLOWING INFORMATION:
A. CERTIFICATION NUMBER AND SIGNATURE OF BALANCING CONTRACTOR.
B. INSTRUMENTATION LIST WITH LAST CALIBRATION DATES.
C. MAKE AND MODEL NUMBERS OF ALL HVAC EQUIPMENT.
D. AIR CFM AND STATIC PRESSURE READINGS (DISCHARGE AND SUCTION) AS MEASURED BY PITOT TUBE DUCT TRAVERSE AT THE UNIT.
E. MOTOR NAMEPLATE DATA WITH ACTUAL FIELD VOLTAGE AND AMPERAGE READINGS FOR EACH LEG.
F. MOTOR AND FAN RPMs, SHEAVE SIZES AND BELT SIZES.
G. OUTSIDE, RETURN, MIXED AND SUPPLY AIR TEMPERATURES AT FULL COOLING AND HEATING.
H. WATER BALANCE DATA INCLUDING GPM WITH INLET AND OUTLET TEMPERATURE AND PRESSURE READINGS (WHERE APPLICABLE)
I. MAKE AND MODEL NUMBERS OF ALL AIR DISTRIBUTION EQUIPMENT.
J. FINAL BALANCED AIR VOLUMES AT ALL OUTLETS (INCLUDING RETURNS WHERE DUCTED).
K. INDEXED PLAN WITH DIFFUSER AND RETURN LOCATIONS.
E. ALL CONTROL SEQUENCES SHALL BE TESTED (INTERLOCKED EQUIPMENT, SMOKE DETECTORS, SMOKE EVACUATION, ECONOMIZER, ETC.) AND OPERATING STATUS RECORDED IN THE REPORT.
F. THREE COPIES OF THE BALANCE REPORT SHALL BE SUBMITTED THROUGH THE GENERAL CONTRACTOR TO THE TENANT'S CONSTRUCTION MANAGER FOR APPROVAL.
G. THE BALANCING CONTRACTOR SHALL PERFORM ALL APPLICABLE TESTING AND BALANCING FUNCTIONS AS REQUIRED FOR THE SYSTEM DESIGNED IN THESE DRAWINGS. THE BALANCING CONTRACTOR SHALL RECHECK ANY ITEMS THAT THE TENANT DEEMS NECESSARY AT NO ADDITIONAL COST TO THE TENANT.
H. CONTROLS CONTRACTOR SHALL PROVIDE, AT NO COST, ALL NECESSARY SOFTWARE AND HARDWARE REQUIRED FOR SYSTEM BALANCE AND VERIFICATION OF CONTROLS. CONTROLS CONTRACTOR SHALL BE PRESENT AND ASSIST TEST & BALANCE CONTRACTOR DURING CONTROLS VERIFICATION. PRIOR TO START OF TEST & BALANCE, THE CONTROLS CONTRACTOR SHALL VERIFY ALL CONTROLS ARE OPERATIONAL AND ALL INPUT VALUES HAVE BEEN ENTERED PER DESIGN DOCUMENTATION. CONTROLS CONTRACTOR SHALL PROVIDE CONTROL SYSTEM START-UP SHEETS VERIFYING CONTROLS OPERATION PRIOR TO THE START OF TEST & BALANCE.
I. FINAL BALANCE REPORT SHALL BE INCLUDED IN THE OPERATION AND MAINTENANCE MANUALS.



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CONSTRUCTION DOCUMENTS
01-20-2026

Table with 3 columns: No., Description, Date. The table is mostly empty with some faint text visible in the first few rows.

JOHNSON COUNTY EMA STORAGE

MECHANICAL SPECIFICATIONS

Table with 2 columns: Project number, Date. Values: 25041, 24-060, 01-20-2026. Other entries: Drawn by MBP, Checked by KSF.

M002
Scale 1/8" = 1'-0"

