

STRUCTURAL NOTES

STRUCTURAL GENERAL NOTES AND SPECIFICATIONS:

DIVISION 01 – GENERAL

1. The Engineer of Record only assumes responsibility for that which was prepared by the Engineer of Record.
2. Refer to Structural Cover Sheet for applicable structural codes.
3. The structure shown on these drawings is structurally sound only in its completed form. The contractor shall brace all earth, forms, concrete, steel, wood, masonry, to resist gravity, earth, wind and construction loads during construction.
4. Contractor shall exercise proper precaution to verify all existing conditions and layout or work. Immediately notify Engineer of any discrepancies. Contractor is responsible for any error resulting from failure to exercise such precaution.
5. Any discrepancies, errors or omissions discovered in the contract documents shall be brought to the attention of the Engineer before proceeding with related work. Otherwise, the correction of such items is the responsibility of the contractor and/or subcontractor.
6. Where a detail, typical detail, section, typical section or a note is shown for one condition, it shall apply for all like or similar conditions unless otherwise noted.
7. Should structural conflicts occur affecting fit-up of structural material, contractor shall notify engineer. Under no circumstances should structural material be modified to accommodate fit-up without the engineer's approval.

DIVISION 02 – CONCRETE

Foundation Criteria:

1. Interior column footings have been designed for placement on original, undisturbed soil or compacted fill material of 1500 PSF minimum bearing capacity.
2. All fill areas shall be cleared and stripped of organic material under building or paving areas. Proof rolling of existing soil and compaction of fill material to 95% Standard Proctor shall be completed to within 12" of the bottom of the floor slab to a distance of 8'-0" outside of building area before footing excavation is begun. The remaining 12" below the slab shall be compacted to 95% Standard Proctor. Parking areas shall be compacted to a minimum of 90% Standard Proctor. Any engineered structural fill shall be placed in 8" lifts, maximum.

Concrete:

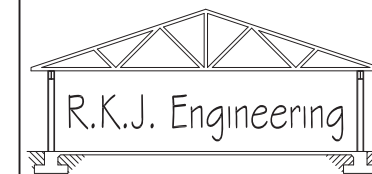
1. All concrete construction shall conform to ACI 301, Specifications for Structural Concrete for Buildings, ACI Building Code 318, ACI 322 and Guide for Concrete Floor and Slab Construction ACI 302.1R.
2. When hot or cold weather conditions exist during placement and curing of concrete that would impair the quality and strength of concrete, special measures shall be taken as specified in ACI 305 "Hot Weather Concreting" and ACI 306 "Cold Weather Concreting".
3. Structural concrete shall be as follows, unless otherwise noted, 28 day minimum compressive strength:
 - a) Footings & Foundations: 3500 PSI
 - b) Floor Slab: 3500 PSI
 Slump attained shall be 4" (+/- 1"). Concrete for masonry filled cells may be placed with 8" to 11" slump.
4. Unless noted otherwise, details of concrete reinforcement and accessories shall be in accordance with ACI 315, Manual of Standard Practice for Detailing Reinforced Concrete Structures and CRSI MSP-1, Manual of Standard Practice, latest edition.
5. Reinforcing steel shall conform to ASTM A615, grade 60, and ASTM A616.
6. Unless otherwise noted, reinforcing lap splices shall be ACI Class B splices using the following lap lengths:

#4	24"
#5	30"
#6	36"
#7	42"
7. All welded reinforcing steel shall be ASTM A706 and be free of oil, scale, and rust. Welding of bars shall conform to ANSI/AWS D1.4 "Structural Welding Code – Reinforcing Steel".
8. Wire mesh shall conform to ASTM A185; minimum lap to be 6 inches.
9. Provide corner bars at corners of concrete walls and footings. Size and spacing of bars shall match size and spacing of longitudinal bars in walls or footings.
10. Concrete slab and design criteria shall be as noted on the structural plans.
11. Place 6 mil (nom.) polyethylene vapor barrier under all building slabs on grade, lap 12" minimum.

12. Slabs on grade shall be placed using strip placement. Sawed joints (noted as S.J. foundation plan) shall be cut as soon as possible after slab is able to support weight of saw and be cut without raveling. Sawing shall be performed within 4 to 12 hours and absolutely before 24 hours has passed from time after first placement. Saw joint nearest midpoint of strip first and then half-way between cuts next.
13. Unless noted otherwise, minimum clear cover for reinforcement shall be as follows:
 - a. concrete cast against earth-3"
 - b. formed concrete exposed to earth or weather-1 1/2" for #5 bars and smaller, 2" for #6 bars and larger.
14. Immediately upon final troweling of slabs, coat with curing compound which meets or exceeds ASTM C-309 "Liquid Membrane-Forming Compounds for Curing Concrete." Coverage shall not be less than 1 gallon per 160 square feet of slab area or more if recommended by curing compound manufacturer (minimum of 8 to 10 mils thick).
15. Floors shall be finished to FF 35 and FL 25, minimum.
16. Do not add calcium chloride or other salty compounds to concrete without specific authorization by Structural Engineer. In no case shall calcium chloride exceed 1 percent.
17. Use Portland Cement Type I or II conforming to ASTM C150-92. Aggregates shall be normal weight conforming to ASTM C33.
18. For every vertical or horizontal bar discontinued by an opening, one bar (min. of two bars) shall be added at the side of the openings. Slabs at corners of openings, cut-outs and penetrations shall be reinforced with 2-#4 (3-0" long) diagonals unless otherwise noted.
19. Pipes, ducts, conduits, etc. shall not be placed in slabs unless approved by the engineer. (Place all pipes below slab).
20. Concrete exposed to weather shall be air-entrained 3.0% to 5.0%. Interior slabs shall have air content of 0% to 3% maximum.



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Pella Building Systems

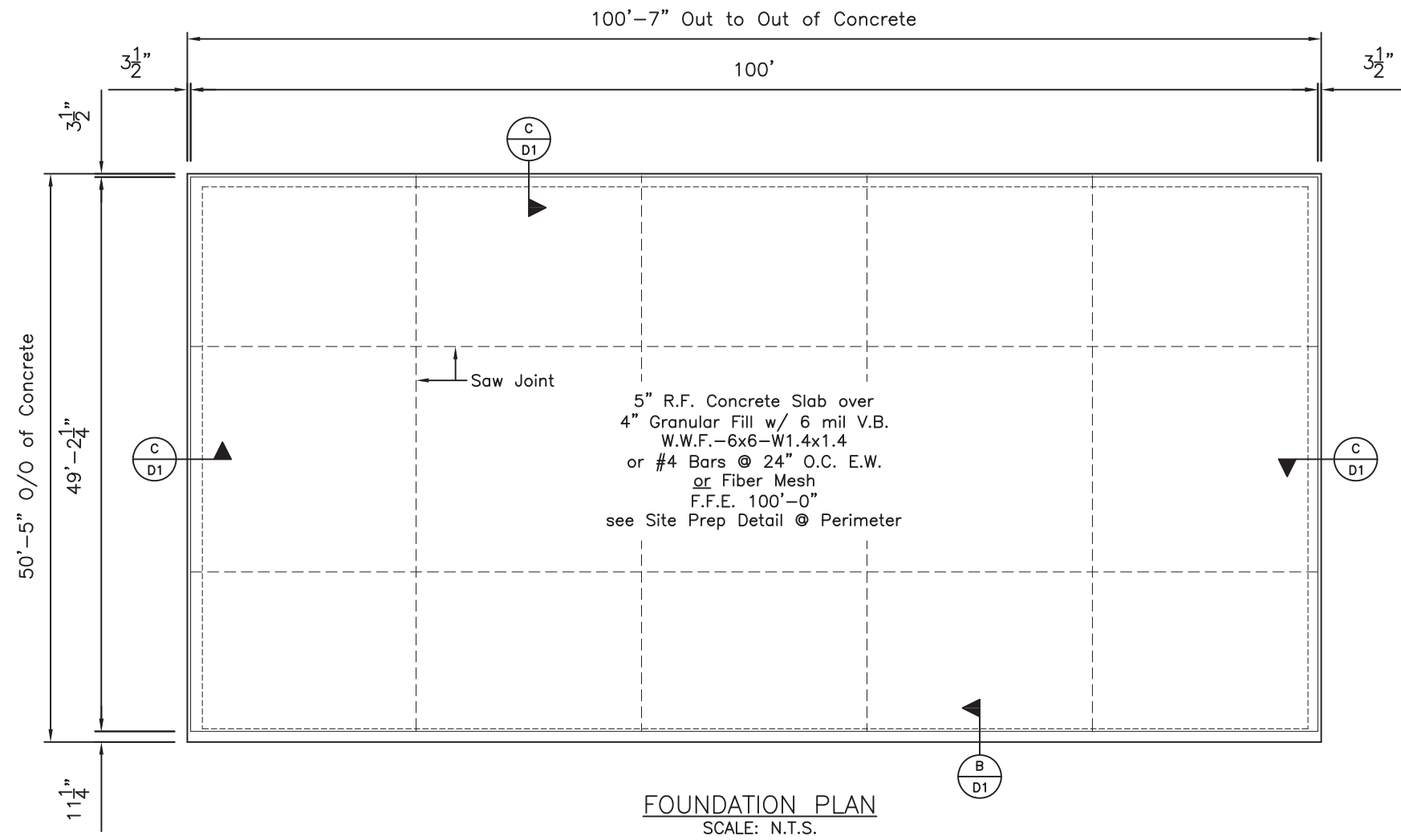
Mega Storage

Lee's Summit, MO

Date :	9/9/22	Drawn By :
Scale :	N.T.S.	RKJ

SPECIFICATION

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GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

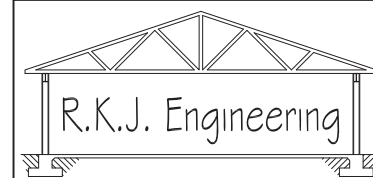
Soils:
Allowable Bearing = 1500 p.s.f.

Minimum Cover:
Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

Reinforcement:
 $f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"



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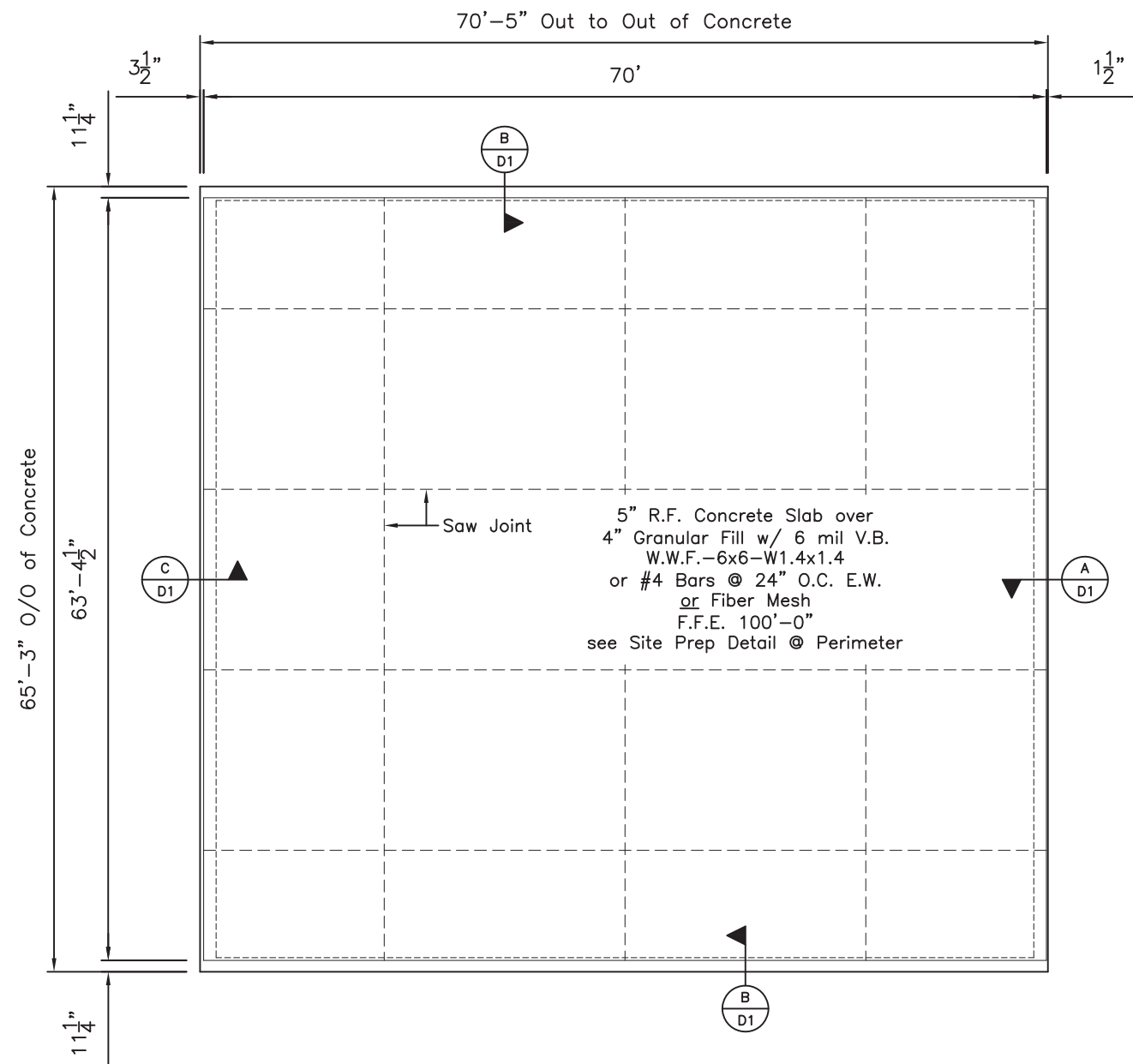
Lee's Summit, MO

Date : 9/9/22 Drawn By :

Scale : N.T.S. RKJ

FOUNDATION PLAN

F1



FOUNDATION PLAN
SCALE: N.T.S.

GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

Soils:

Allowable Bearing = 1500 p.s.f.

Minimum Cover:

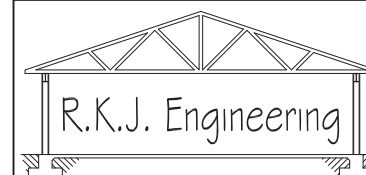
Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

Reinforcement:

$f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"



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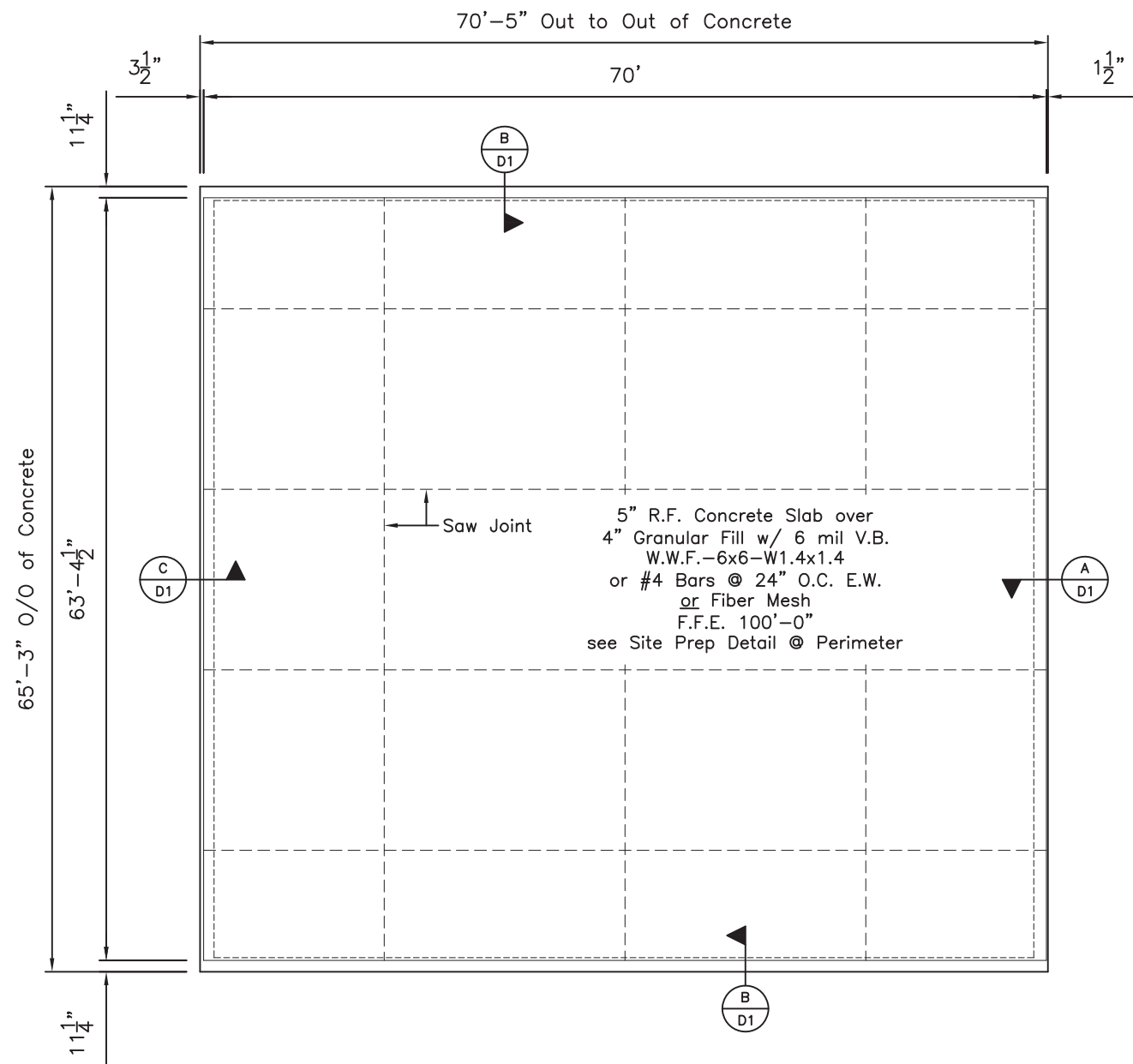
Lee's Summit, MO

Date : 9/9/22 Drawn By :

Scale : N.T.S. RKJ

FOUNDATION PLAN

F2



FOUNDATION PLAN
SCALE: N.T.S.

GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

Soils:

Allowable Bearing = 1500 p.s.f.

Minimum Cover:

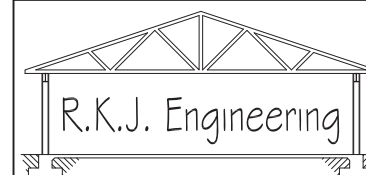
Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

Reinforcement:

$f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"



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Mega Storage-Bldg L

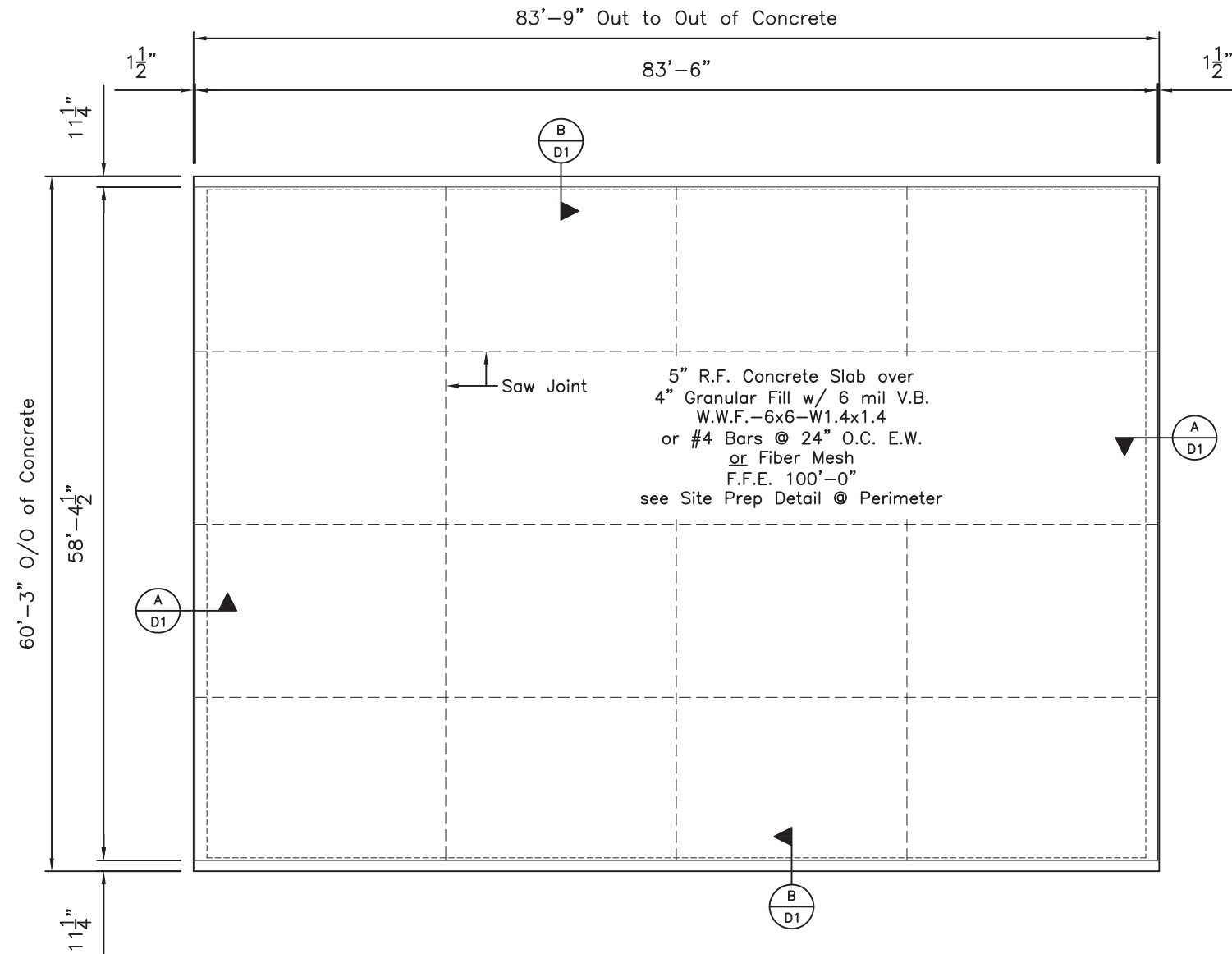
Lee's Summit, MO

Date : 9/9/22 Drawn By :

Scale : N.T.S. RKJ

FOUNDATION PLAN

F3



FOUNDATION PLAN
SCALE: N.T.S.

GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

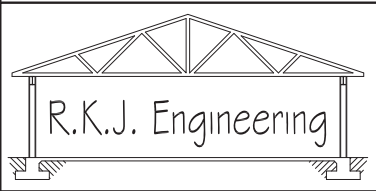
Soils:
Allowable Bearing = 1500 p.s.f.

Minimum Cover:
Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

Reinforcement:
 $f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"

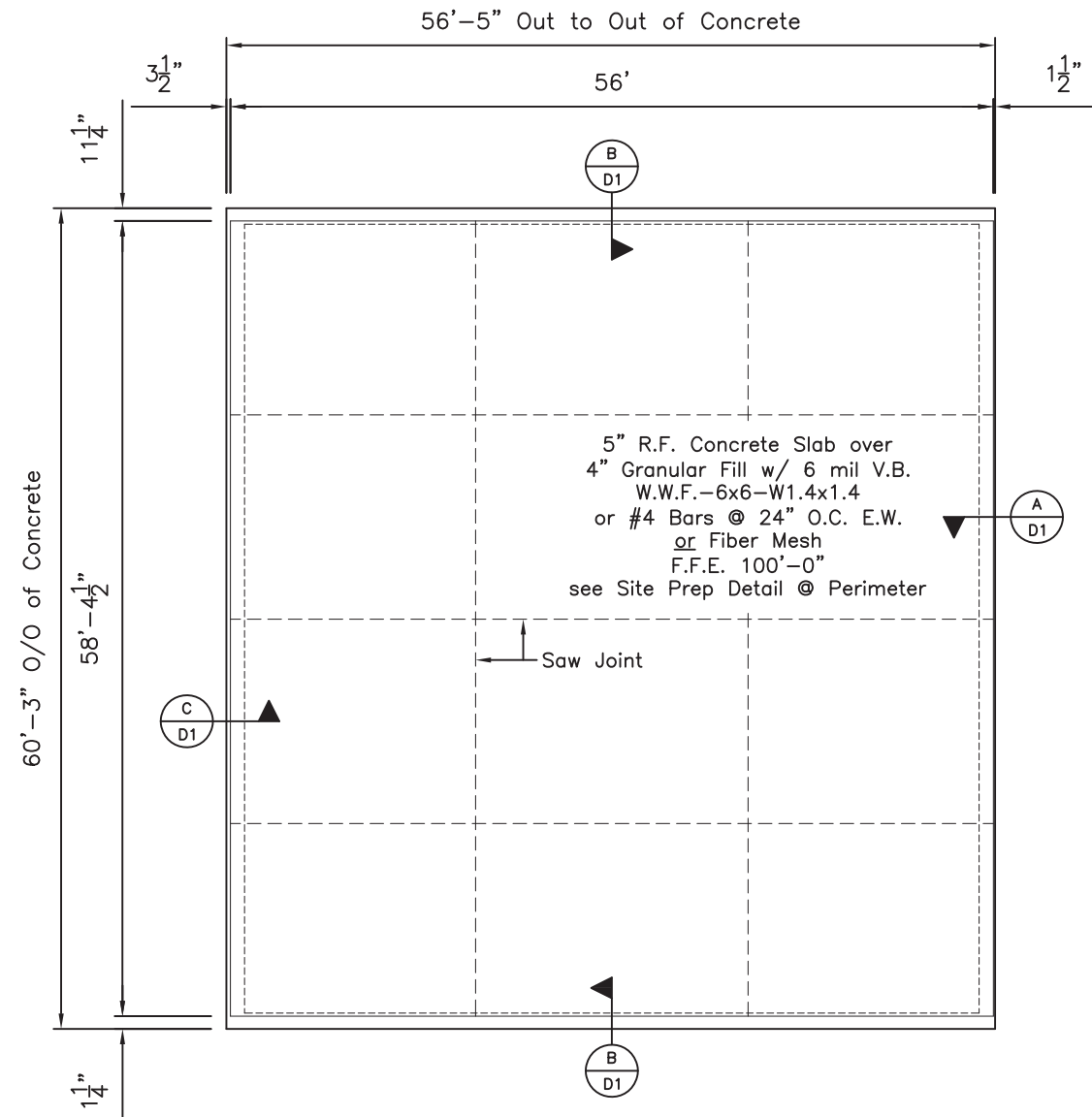


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Scale :	N.T.S.	RKJ
FOUNDATION PLAN		F4



FOUNDATION PLAN
SCALE: N.T.S.

GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

Soils:
Allowable Bearing = 1500 p.s.f.

Minimum Cover:
Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

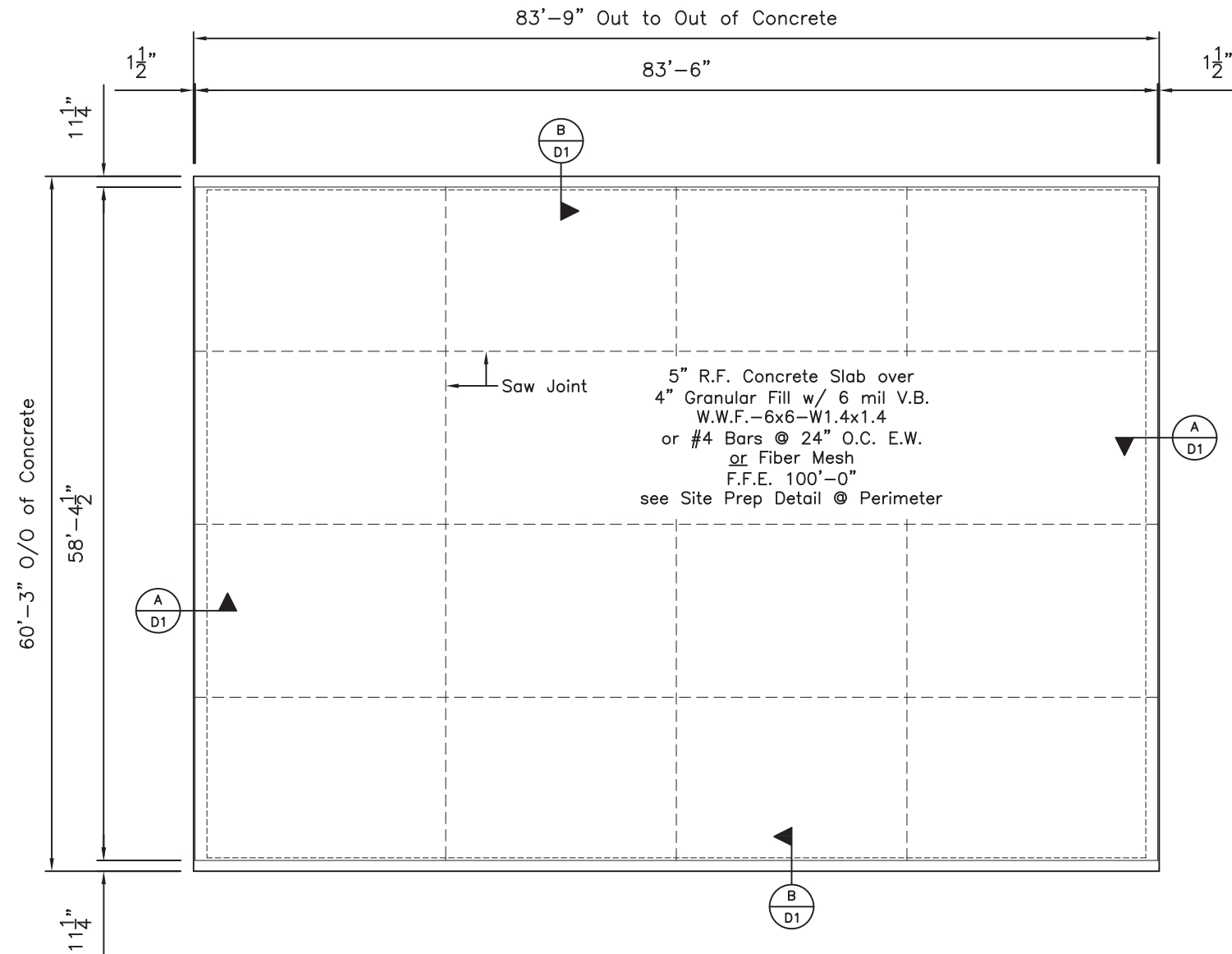
Reinforcement:
 $f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"



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Lee's Summit, MO		
Date :	9/9/22	Drawn By :
Scale :	N.T.S.	RKJ
FOUNDATION PLAN		F5



FOUNDATION PLAN
SCALE: N.T.S.

GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

Soils:
Allowable Bearing = 1500 p.s.f.

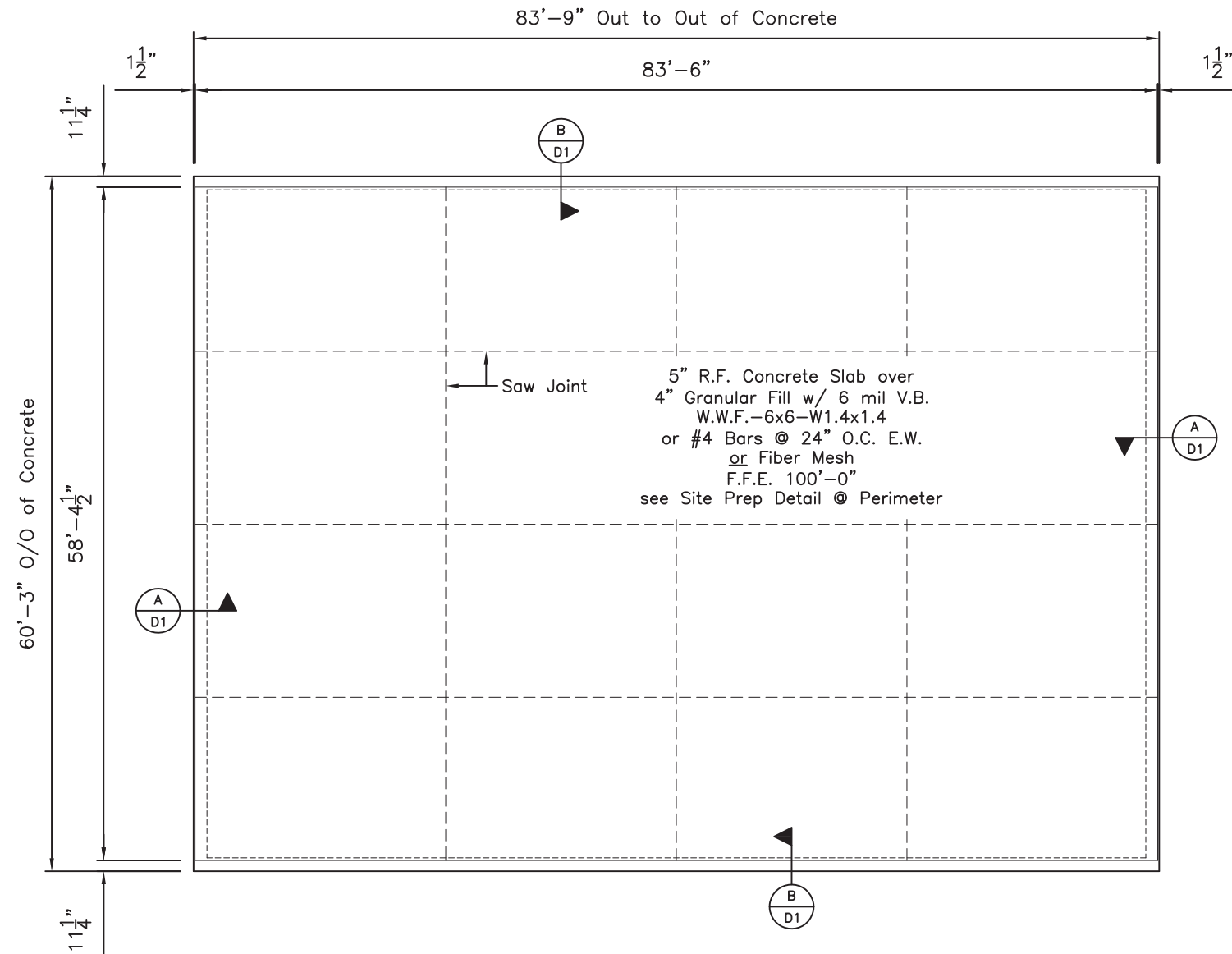
Minimum Cover:
Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

Reinforcement:
 $f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"



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Mega Storage-Bldg R		
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Date :	2/27/23	Drawn By :
Scale :	N.T.S.	RKJ
FOUNDATION PLAN		F6



FOUNDATION PLAN
SCALE: N.T.S.

GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

Soils:
Allowable Bearing = 1500 p.s.f.

Minimum Cover:
Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

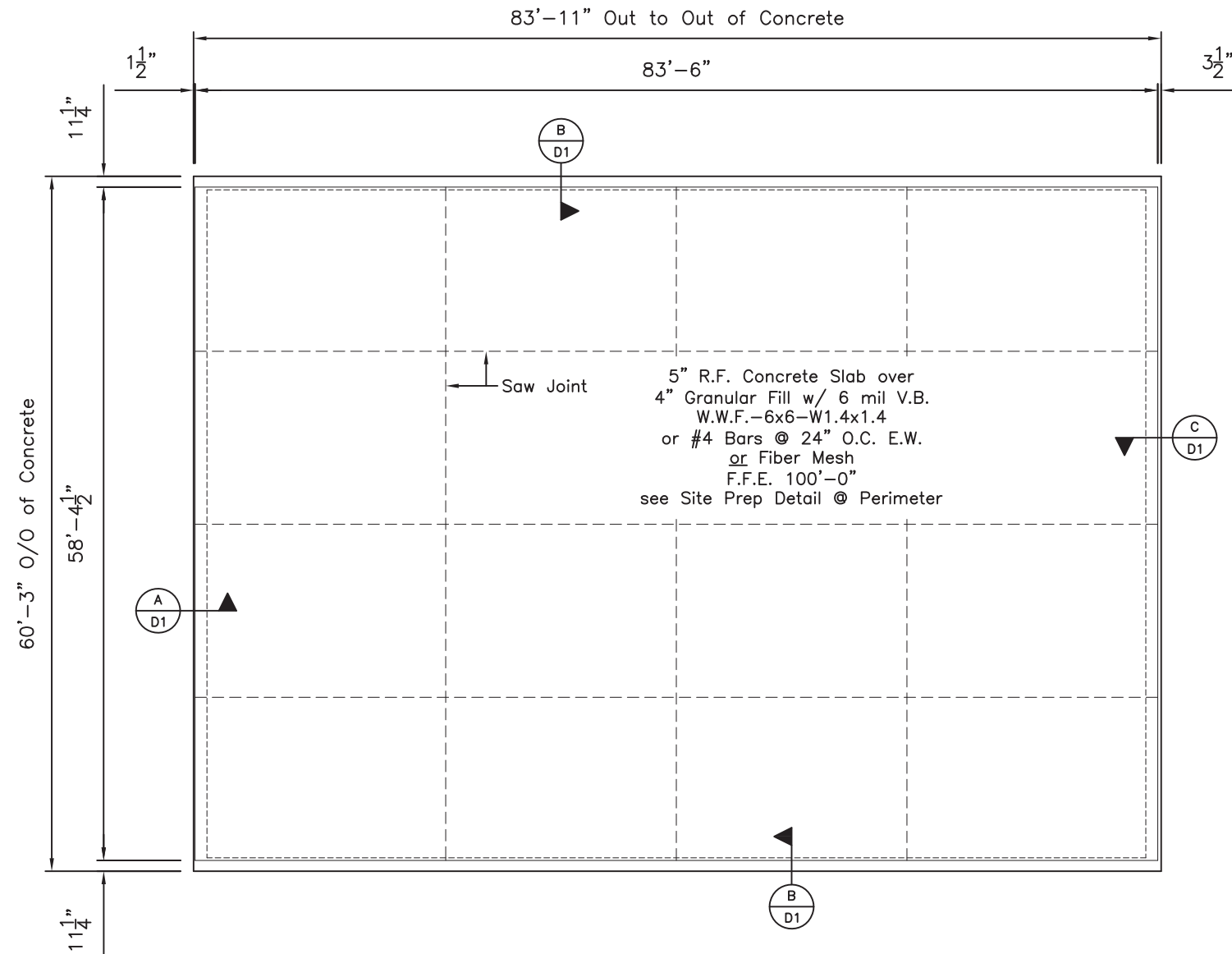
Reinforcement:
 $f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"



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FOUNDATION PLAN		F7



FOUNDATION PLAN
SCALE: N.T.S.

GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

Soils:
Allowable Bearing = 1500 p.s.f.

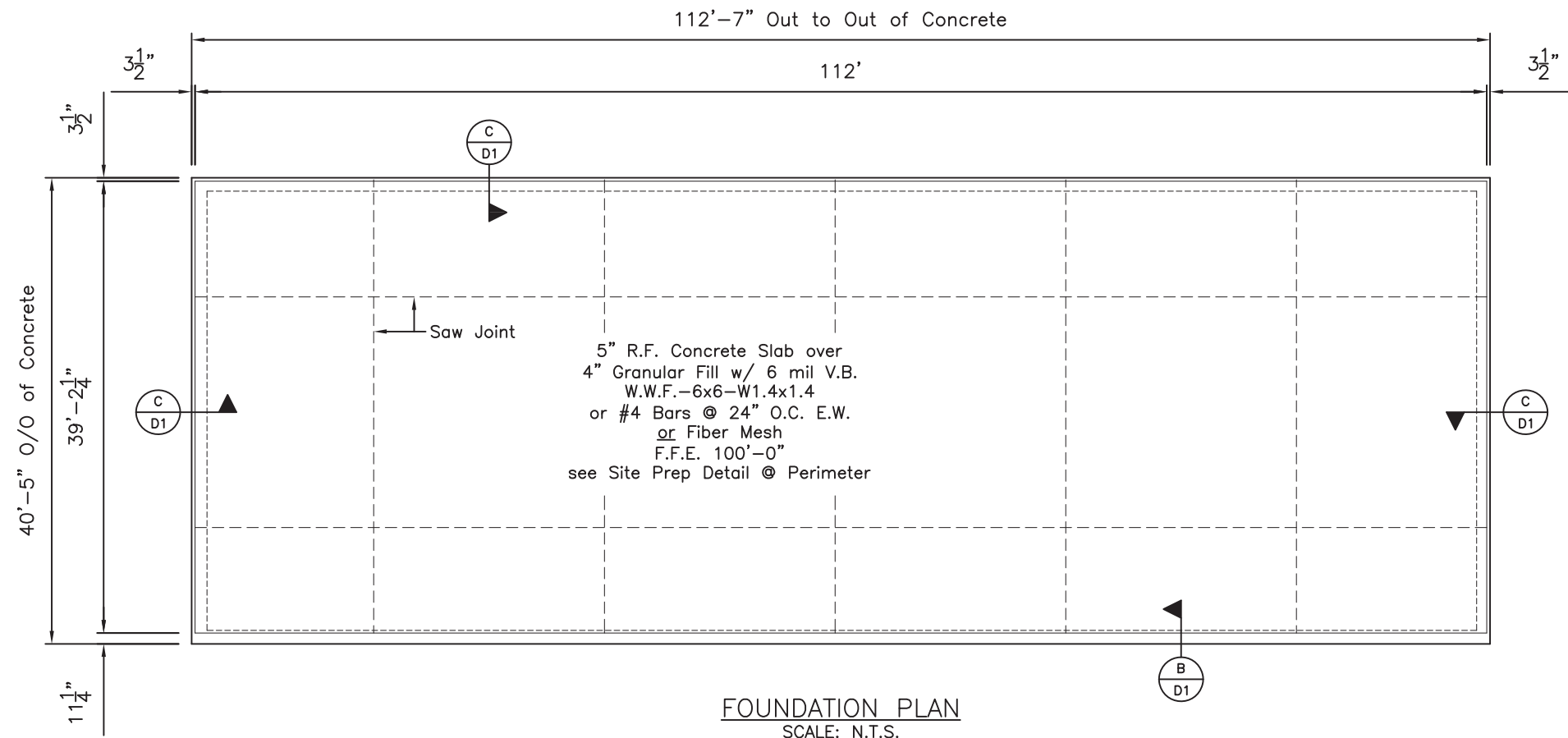
Minimum Cover:
Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

Reinforcement:
 $f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"



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FOUNDATION PLAN		F8



GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

Soils:

Allowable Bearing = 1500 p.s.f.

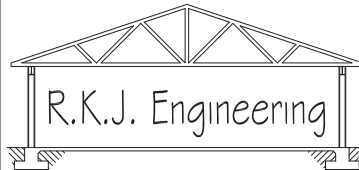
Minimum Cover:

Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

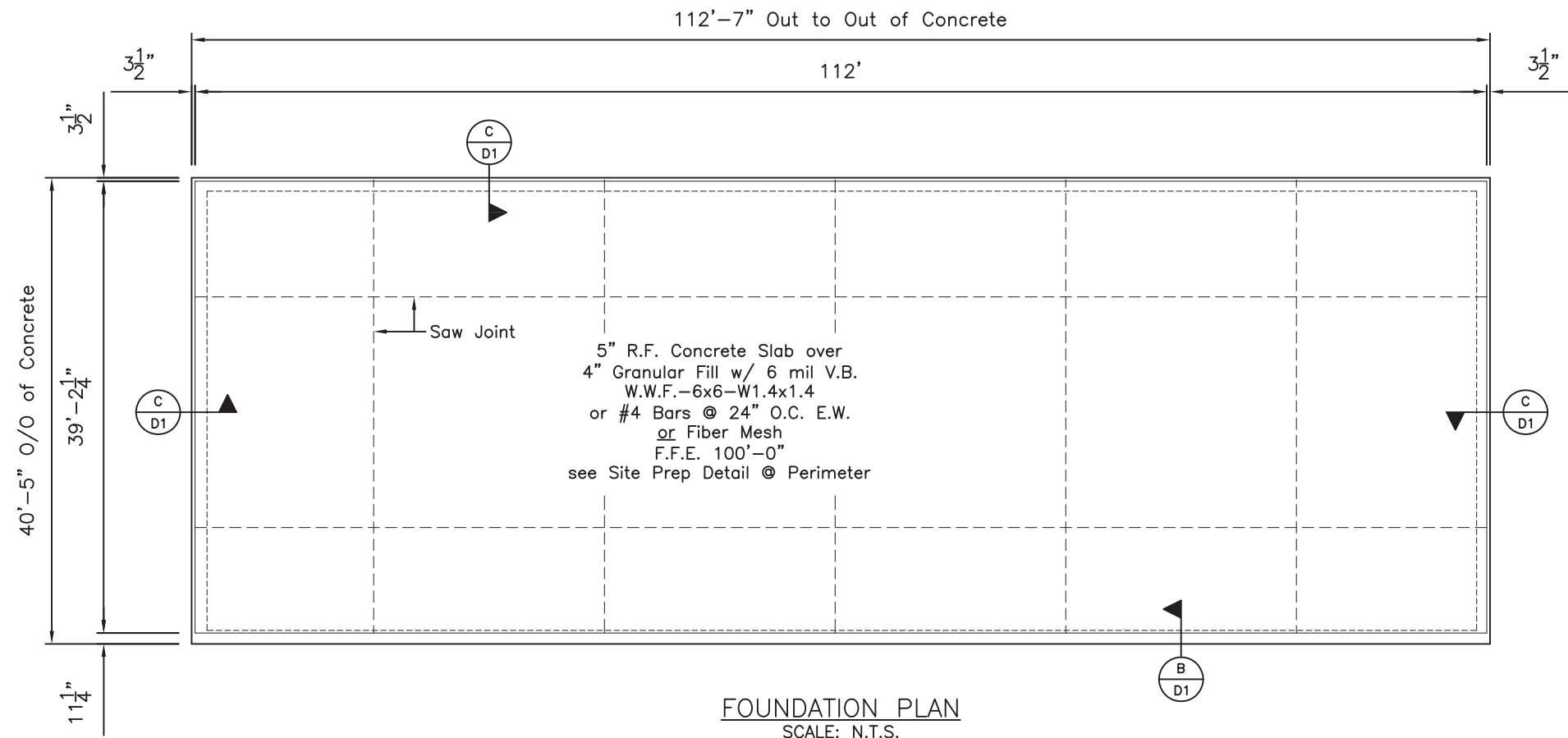
Reinforcement:

$f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"



△

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Scale :	N.T.S.	RKJ
FOUNDATION PLAN		F9



GENERAL NOTES:

Concrete:
As per IBC '18 and ACI - 318

Loads:
Live Load = 125 p.s.f. (slab)
Dead Load = 65 p.s.f. (slab)

Slab will be 5" thick resting on
4" Granular Fill Reinforced with W.W.F.
or Rebar or Fiber Mesh

Design Strength: $f'c = 3500$ p.s.i.

Soils:

Allowable Bearing = 1500 p.s.f.

Minimum Cover:

Cast against earth = 3"
Exposed to earth or weather = 2"
All other reinforcement = 1 1/2"

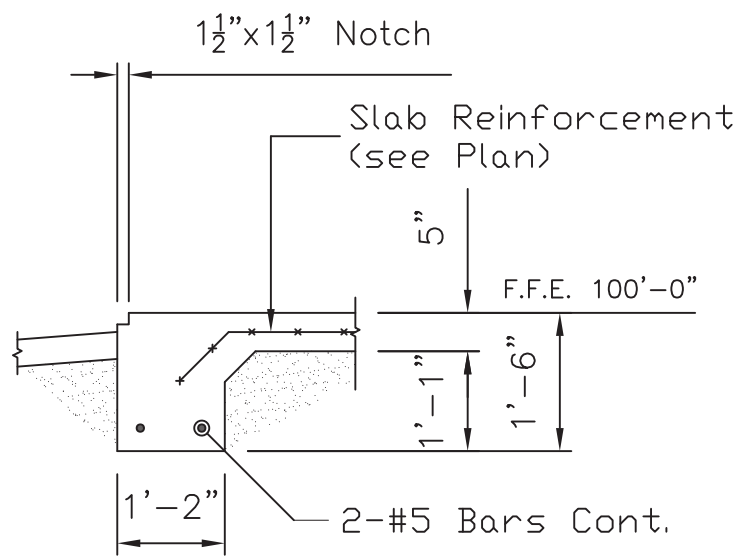
Reinforcement:

$f_y = 60,000$ p.s.i.
All laps shall be 48 x bar ϕ u.n.o.
#3 - 18"
#4 - 24"
#5 - 30"
#6 - 36"



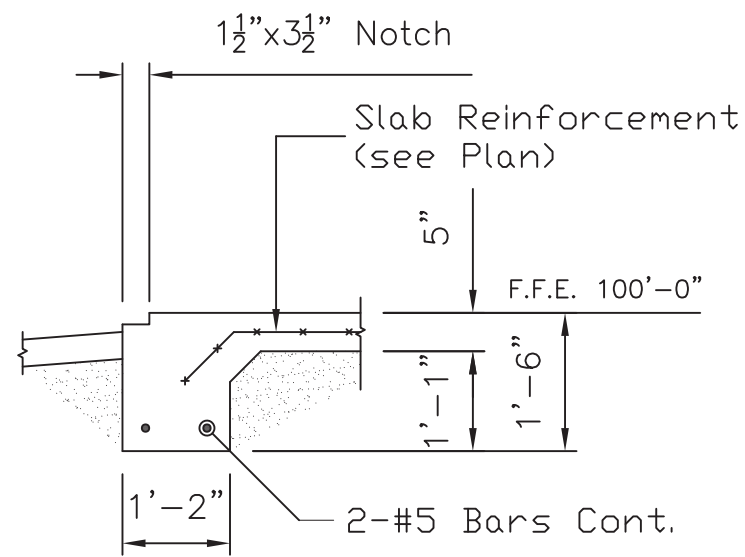
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FOUNDATION PLAN		F10



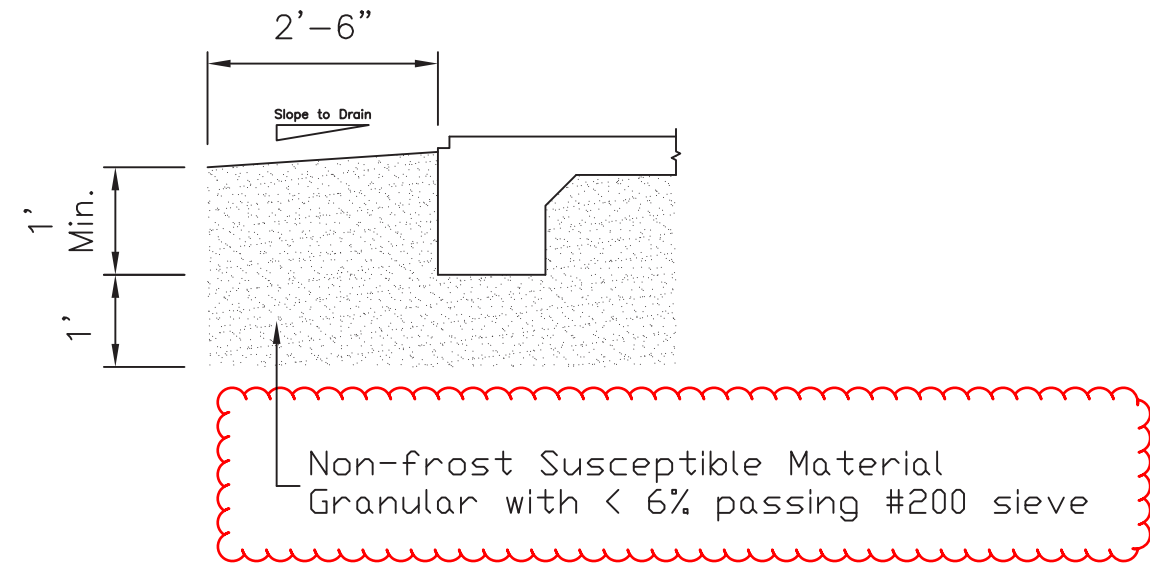
SECTION A

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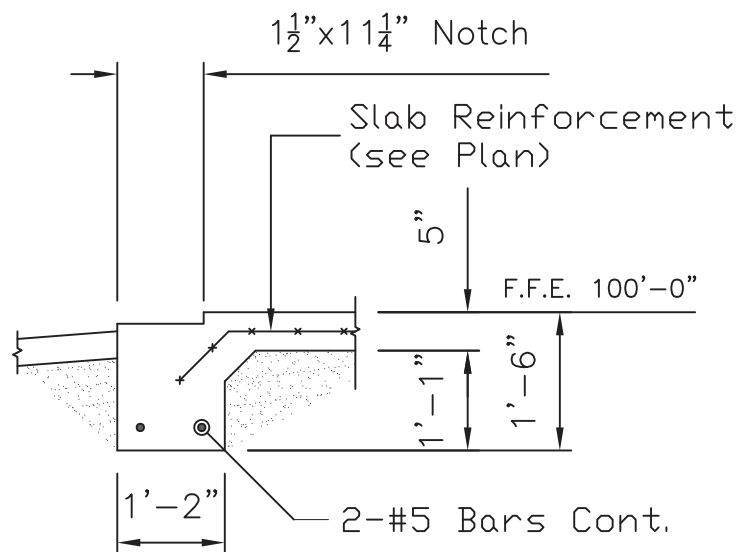
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Scale: N.T.S.



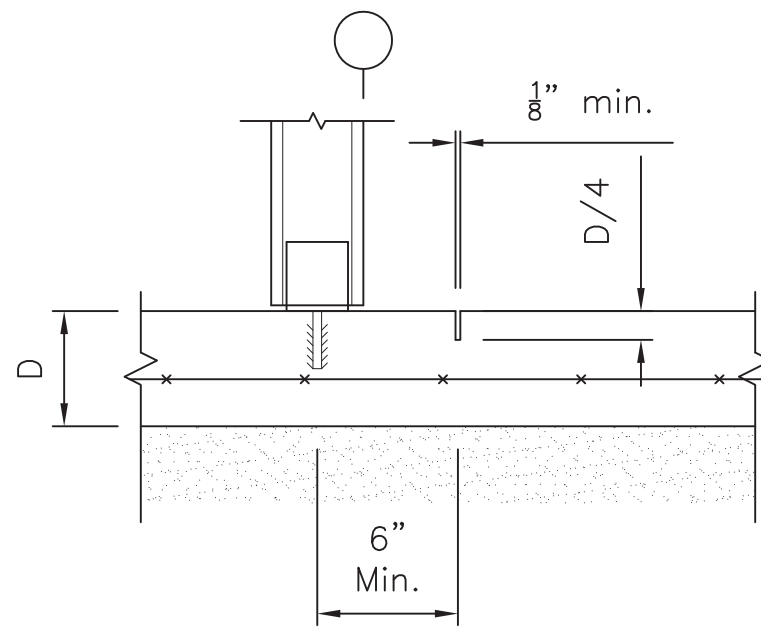
TYPICAL SITE PREP

Scale: N.T.S.



SECTION B

Scale: N.T.S.

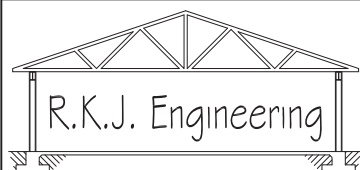


TYP. SAW JOINT

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Mega Storage
Lee's Summit, MO

Date : 9/9/22 Drawn By :
Scale : N.T.S. RKJ

SECTIONS/DETAILS

D1