



STEEL SCHEDULE

MARK	SIZE	QUANTITY	TYPE	A	B	C	LENGTH	TOTAL LENGTH
①	#4		STR	---	---	---	5'-1"	
②	#4		STR	---	---	---		
③	#5	2		0'-10"	1'-11"	---	2'-9"	
④	#4		STR	---	---	---	4'-10"	
⑤	#4		STR	---	---	---		
⑥	#4	20		---	1'-0"	4'-0"	5'-0"	
⑦	#4	20		---	2'-0"	2'-0"	4'-0"	
⑧	#4		STR	---	---	---	3'-0"	
#4 Bars Total Length								

STEEL DETAILS

BAR SIZE	INSIDE BEND DIAMETER (D) INCHES	LONGITUDINAL STEEL LAP SPLICE LENGTH, INCHES (MIN.)	
		Wall bars	Footing bars
#4	3	19	16
#5	3.75	-	-

Total length of wall (measured along ϕ wall) = _____ ft.

ESTIMATED QUANTITIES

CONCRETE (0.293 CU.YD./FT OF WALL)=_____	CU.YD.
STEEL #4 BARS (0.668 LB./FT.)=_____	LB.
STEEL #5 BARS (1.043 LB./FT.)=_____	LB.

Steel quantity include splice lengths? Y___ N___

CONDITIONS OF USE

Allowable backfill height = 0 to 5 ft
 Soil backfill type = low-P.I. sandy/gravelly silts and clays, with 50% or more fines; or fine sand, with less than 50% fines
 Water table below footing
 Machinery surcharge load allowed on pavement slab
 Machinery surcharge NOT allowed directly on soil for backfill heights greater than 4 ft
 Not designed to support buildings or roofs

MATERIALS

Concrete compressive strength = 4,000 psi
 Reinforcing steel shall be Grade 60.
 Concrete and reinforcing steel shall meet requirements of Construction Specification IA-31.

WALL DESIGN LOADINGS

Manure load inside = 65 psf/ft EFP (Equivalent Fluid Pressure)
 Soil backfill density = 110 pcf
 Soil backfill load = 75 psf/ft EFP
 Design surcharge load = 57 psf horizontal pressure (modeling machinery on slab)

WALL SLIDING RESTRAINT REQUIREMENTS

Assumptions:
 5-inch thick floor slab, factor of safety against sliding 1.5
 Coefficient of friction (soil/concrete) = 0.4 (well-graded, angular gravel/sand base)

Backfill Height,ft.	Min. Floor Slab Length,ft.*	Backfill Height,ft.	Min. Floor Slab Length,ft.*
5	70	2	5
4	44	1**	1
3	22	0**	2

* Min. floor slab length for restraint is not required if L-wall forms a tank with opposing wall having approximately the same backfill height.
 **When backfill height is 1 ft or less, floor slab shall be tied to wall footing with tension steel (deformed bar reinforcement). Provide minimum 0.07 sq.in./ft (equiv. #3 @ 18") as 36 in. long tie bars, or extend slab steel into footing a minimum of 18 inches.

GENERAL DESIGN NOTES

- Design loadings and soil pressures based upon criteria found in Conservation Practice Standard 313 (Waste Storage Facility).
- Drainage shall be away from the wall.
- Minimum width of backfill against the wall shall be equal to or greater than the backfill height, but not less than 2 ft.
- Backfill height of 4 ft or more is recommended for frost protection.
- Minimum required subgrade bearing capacity = 2000 psf.
- Mark ② and ⑤ bars shall extend to 2-3 inches from edge of concrete at ends of straight wall sections.
- Mark ③ and ④ bars shall be placed a maximum of 6 inches from wall end or inside face of corner.
- Footing slab reinforcement at corners: extend Mark ② (longitudinal) bars into shaded Corner Region (see detail) from both sides of corner to 2-3 inches from edge of slab. Discontinue Mark ① (transverse) bars in shaded corner region.
- Construction joint shall be completed as described in Const. Spec. IA-31. Surface of construction joint shall be roughened to approximately 1/4" depth.

NOT TO SCALE

Date: 07/08
 Designed: JGibbs
 Drawn: JGibbs
 Checked: JGibbs
 Approved: JGibbs

5-FT HIGH REINFORCED CONCRETE "L" WALL
 0' TO 5' LOW-P.I. BACKFILL, SURCHARGE ON SLAB
 8" WALL THICKNESS

NRCS
 Natural Resources Conservation Service
 United States Department of Agriculture

File No. IA-1680b.dwg
 Drawing No. _____
 Sheet of _____