



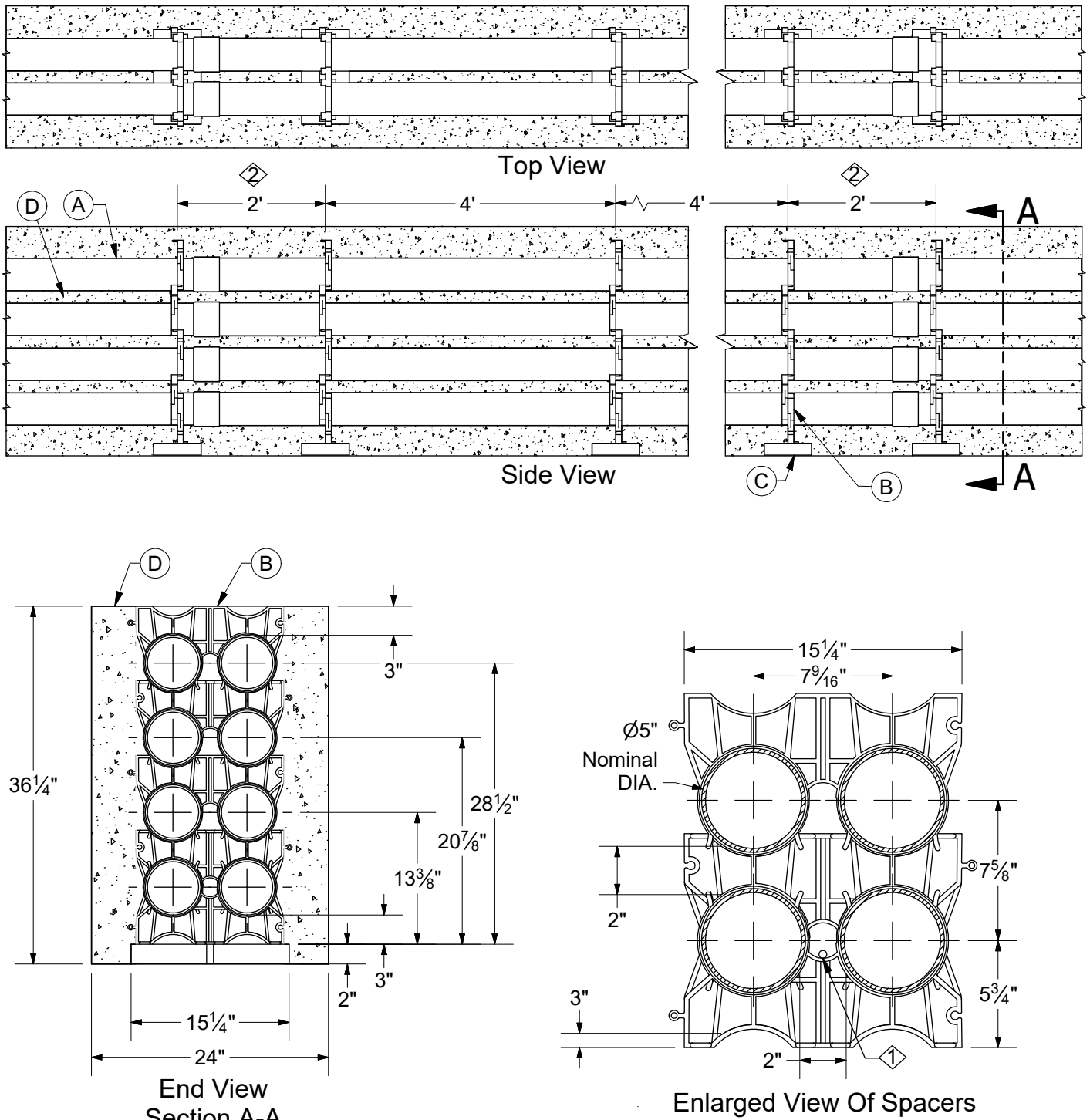
DUCT SYSTEMS

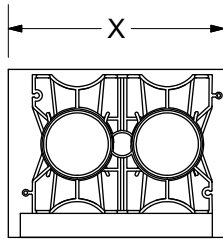
TABLE OF CONTENTS

31 00 00 01

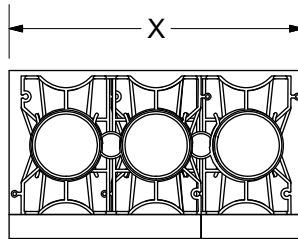
1 of 1

STANDARD DUCT CONSTRUCTION.....	31 10 01 **
4 DUCT TRANSPOSITION STANDARD TO FLAT POSITION.....	31 10 03 00
6 DUCT TRANSPOSITION STANDARD TO HORIZONTAL POSITION.....	31 10 04 00
6 DUCT TRANSPOSITION STANDARD TO FLAT POSITION.....	31 10 05 00
8 DUCT TRANSPOSITION STANDARD TO HORIZONTAL POSITION.....	31 10 06 00
8 DUCT TRANSPOSITION STANDARD TO FLAT POSITION.....	31 10 07 00
10 DUCT TRANSPOSITION STANDARD TO HORIZONTAL POSITION.....	31 10 08 00
3 FT. AVERAGE TRENCH DEPTH NO PAVING BASE.....	31 11 03 **
4 FT. AVERAGE TRENCH DEPTH NO PAVING BASE.....	31 11 04 **
5 FT. AVERAGE TRENCH DEPTH NO PAVING BASE.....	31 11 05 **
6 FT. AVERAGE TRENCH DEPTH NO PAVING BASE.....	31 11 06 **
7 FT. AVERAGE TRENCH DEPTH NO PAVING BASE.....	31 11 07 **
8 FT. AVERAGE TRENCH DEPTH NO PAVING BASE.....	31 11 08 **
3 FT. AVERAGE TRENCH DEPTH WITH PAVING BASE (9" CONCRETE).....	31 12 03 **
4 FT. AVERAGE TRENCH DEPTH WITH PAVING BASE (9" CONCRETE).....	31 12 04 **
5 FT. AVERAGE TRENCH DEPTH WITH PAVING BASE (9" CONCRETE).....	31 12 05 **
6 FT. AVERAGE TRENCH DEPTH WITH PAVING BASE (9" CONCRETE).....	31 12 06 **
7 FT. AVERAGE TRENCH DEPTH WITH PAVING BASE (9" CONCRETE).....	31 12 07 **
8 FT. AVERAGE TRENCH DEPTH WITH PAVING BASE (9" CONCRETE).....	31 12 08 **
ENCASED CONDUIT FORMATIONS 5" EB CONDUIT.....	31 13 01 **
ENCASED CONDUIT FORMATIONS 4" EB CONDUIT.....	31 13 02 **
U.G. BEND RESTRAINT PVC CONDUIT.....	31 47 01 **
DRAINAGE PIT FOR DIRECT BURIED CONDUIT.....	31 47 02 **

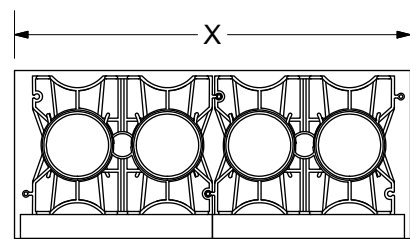




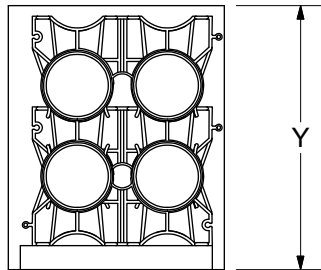
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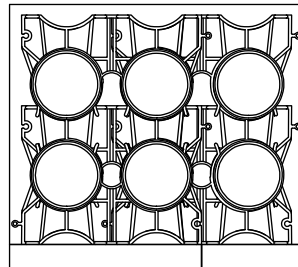
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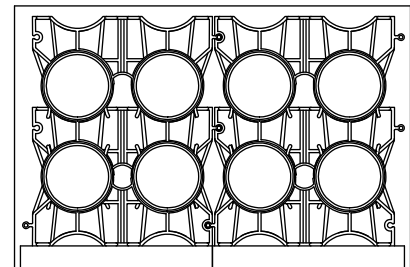
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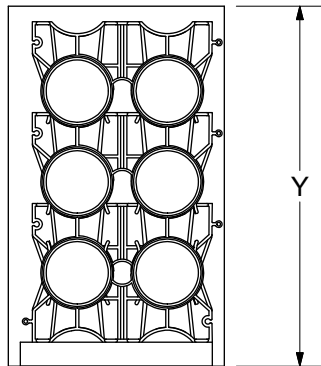
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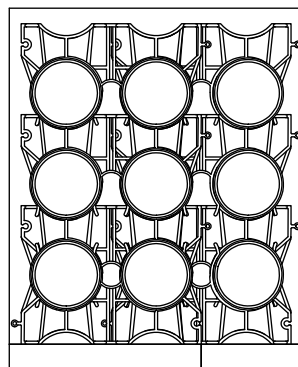
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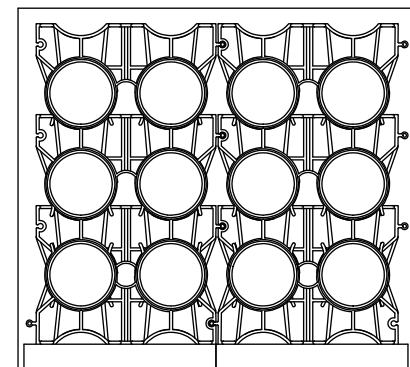
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8-Ducts



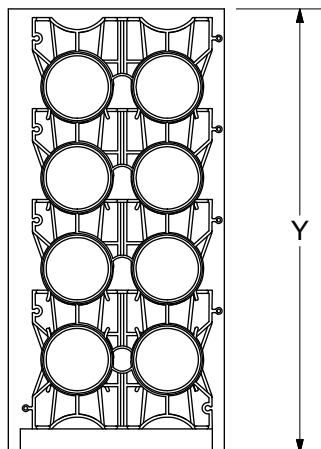
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6-Ducts



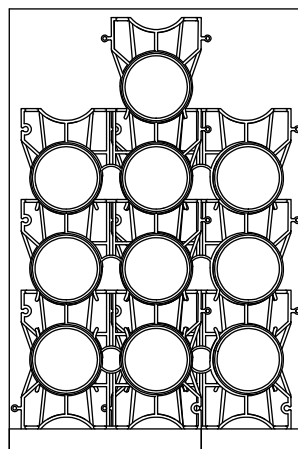
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9-Ducts



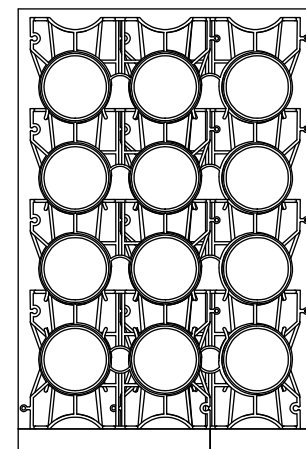
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12-Ducts



31 10 01 10
8-Ducts



31 10 01 11
10-Ducts



31 10 01 12
12-Ducts



DUCT SYSTEMS

Standard Duct Construction

5" EB 35 Conduit

31 10 01 ****3 of 3**

DCS #	Number of Ducts	Dimensions		
		X Min.	X*	Y
31 10 01 01	2	18"	24"	24"
31 10 01 02	3	25"	30"	30"
31 10 01 03	4	33"	36"	36"
31 10 01 04	4	18"	24"	24"
31 10 01 05	6	25"	30"	30"
31 10 01 06	8	33"	36"	36"
31 10 01 07	6	18"	24"	24"
31 10 01 08	9	25"	30"	30"
31 10 01 09	12	33"	36"	36"
31 10 01 10	8	18"	24"	24"
31 10 01 11	10	25"	30"	30"
31 10 01 12	12	33"	30"	36"

* Based on standard 24" or 36" bucket size used to dig trench.

CONSTRUCTION NOTE(s):

1. 4/0 copper bond wire shall be placed in the center of the spacer.
2. Spacers should be installed every 4 ft. for straight runs. If 10 ft. long ducts are used, reduce the 2 ft distance from spacer to ends to 1 ft. and maintain 4 ft. distance between other spacers.
3. Use extra spacers to use on large sweeps in a duct run. Sweeps need more spacers placed closer together.
4. If floatation is a concern, install restraint as necessary per installers' direction. Wood is not an acceptable material for restraint.
5. For duct banks stacked higher than 4 conduits, multiple concrete pours may be necessary to prevent ducts from collapsing.
6. Upon completion of duct bank, the integrity of each duct must be verified by pulling a mandrel through each duct.
7. In situations where the duct bank crosses an unsupported area or large sewer pipe, reinforcing the duct bank will be required per Ameren's direction.

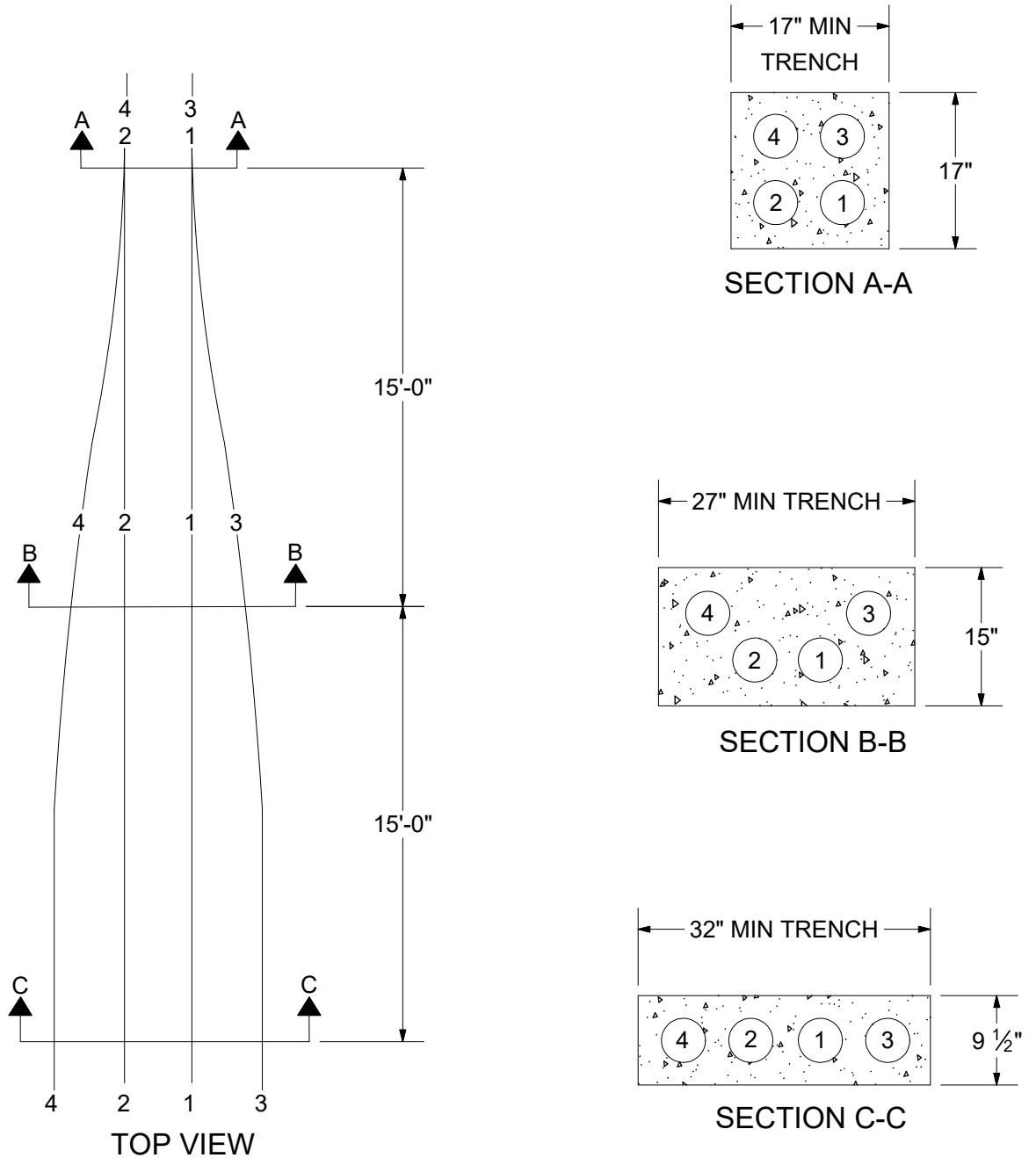
ITEM	DCS/STOCK #	DESCRIPTION	31 10 01 **	01	02	03	04	05	06	07	08	09	10	11	12
A	12 01 335	Conduit - PVC, 5" x 20' EB 35	40	60	80	80	120	160	120	180	240	160	200	240	
B	12 56 120	Spacer - Conduit 5"	10	20	20	15	30	30	20	40	40	25	45	50	
C	11 54 128	Cement Block - Patio 2" x 8" x 16"	5	10	10	5	10	10	5	10	10	5	10	10	
D	98 00 007	Concrete (Cu. Yd.)	1	2	2	2	3	3	3	4	4	3	5	5	

DESIGN NOTE(s):

1. Each DCS includes material for a 20 ft. duct formation.
2. This DCS illustrates the method and materials to be use in duct systems. Design and estimate actual material with DCS 31 11 03 ** to 31 12 03 **.

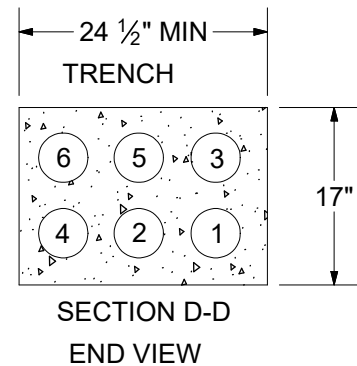
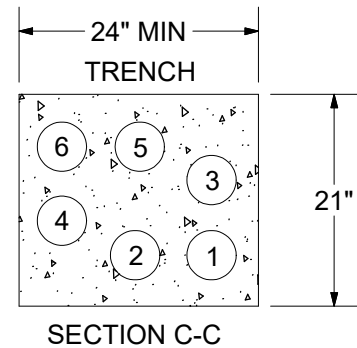
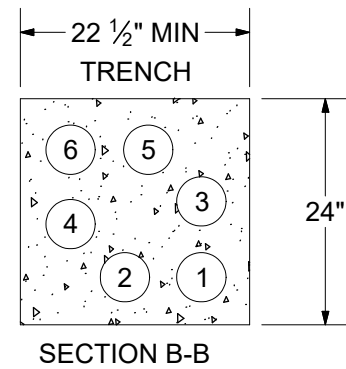
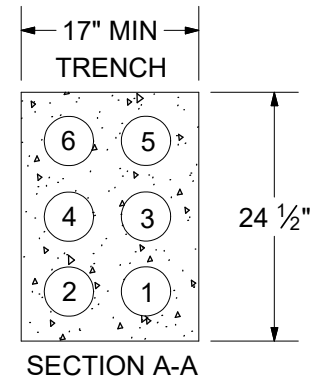
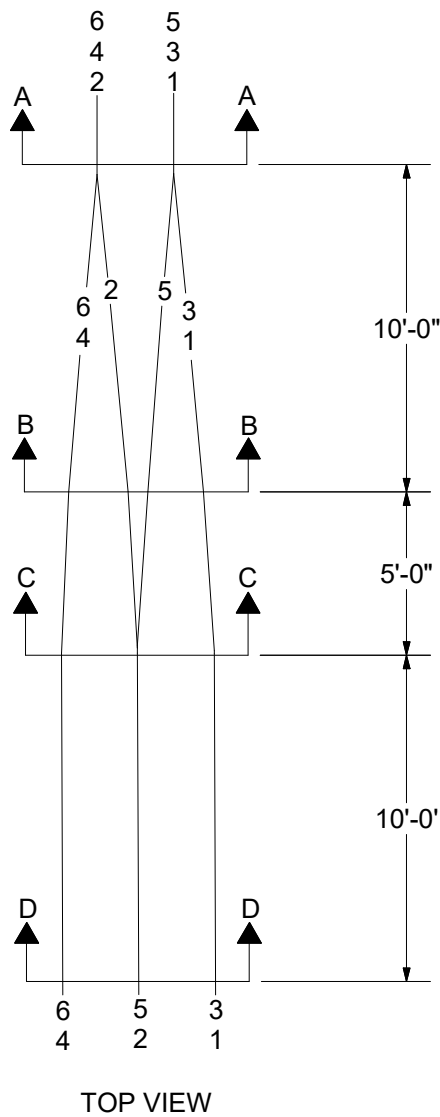
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7	07/04/15	EJB	



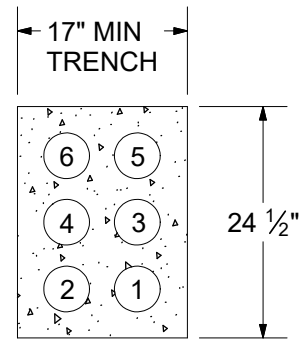
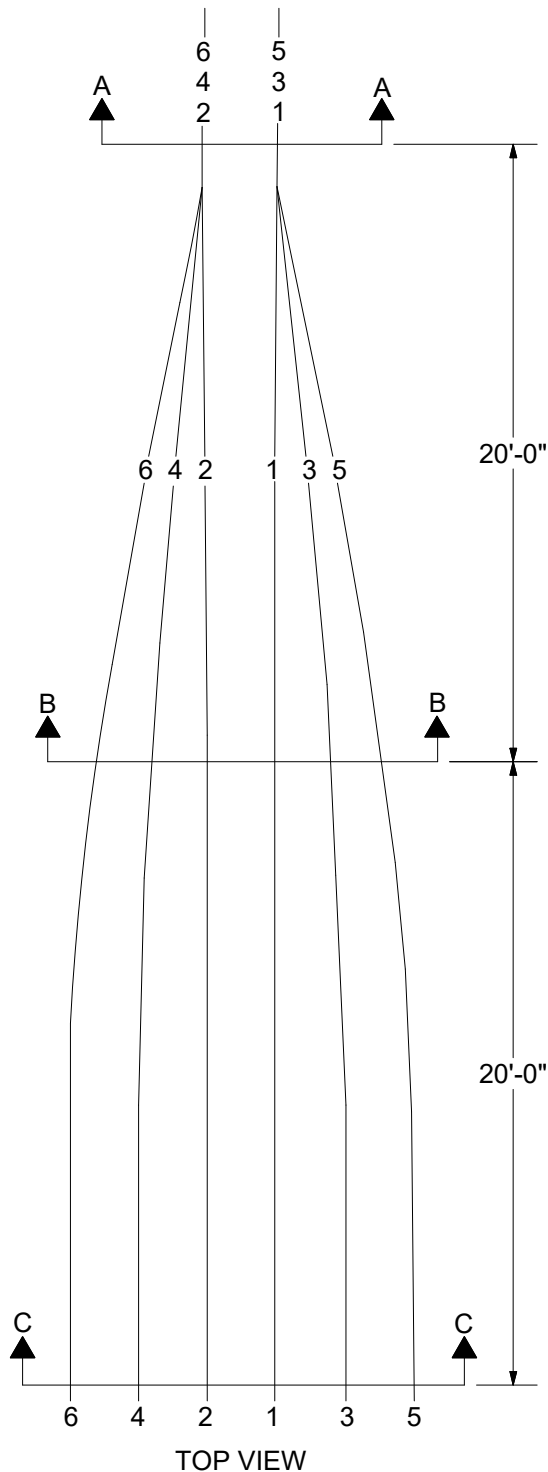
CONSTRUCTION NOTE(s):

1. Dimensions based on 5" conduit.
2. Spacer blocks shall be used to maintain conduit spacing during transposition.

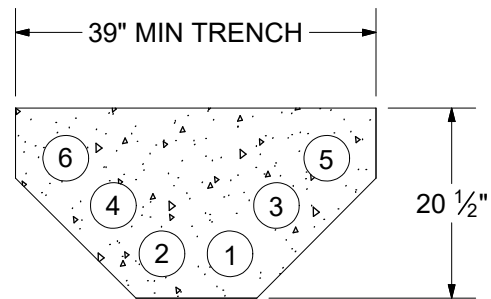


CONSTRUCTION NOTE(s):

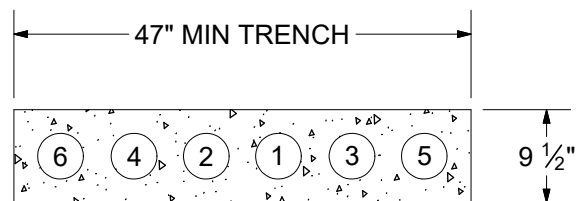
1. Dimensions based on 5" conduit.
2. Spacer blocks shall be used to maintain conduit spacing during transposition.



SECTION A-A



SECTION B-B

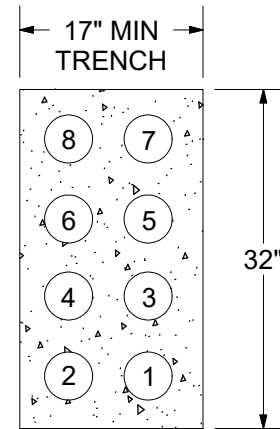
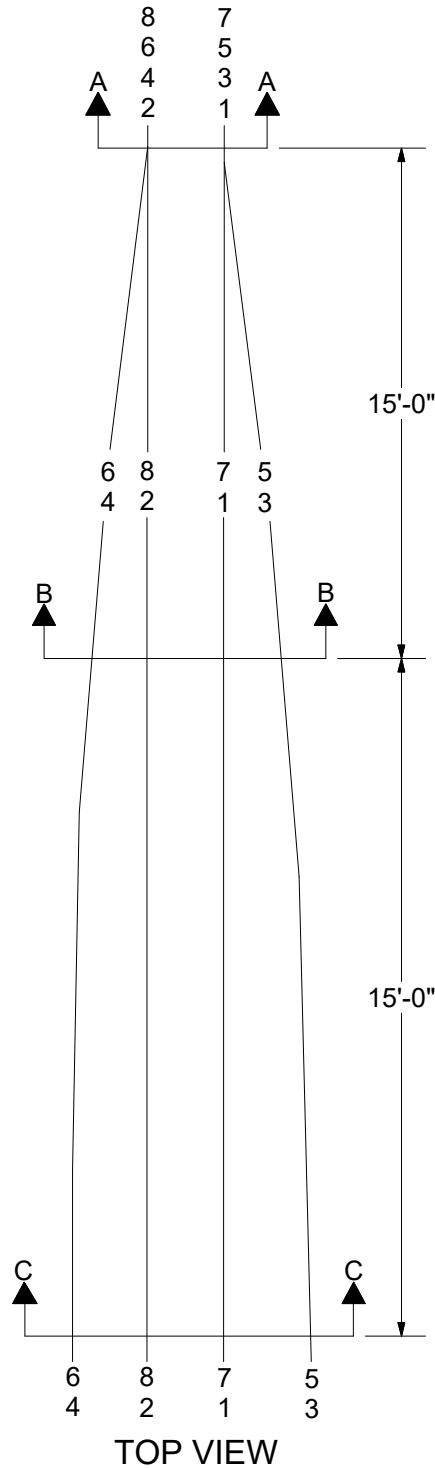


SECTION C-C

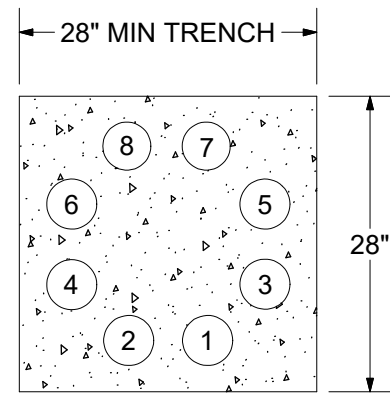
CONSTRUCTION NOTE(s):

1. Dimensions based on 5" conduit.
2. Spacer blocks shall be used to maintain conduit spacing during transposition.

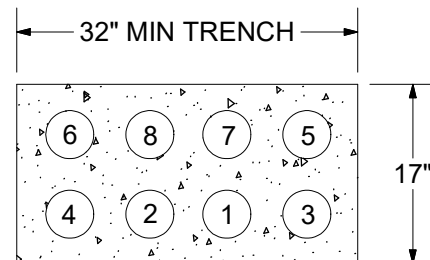
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0	05/03/94	DDG	



SECTION A-A



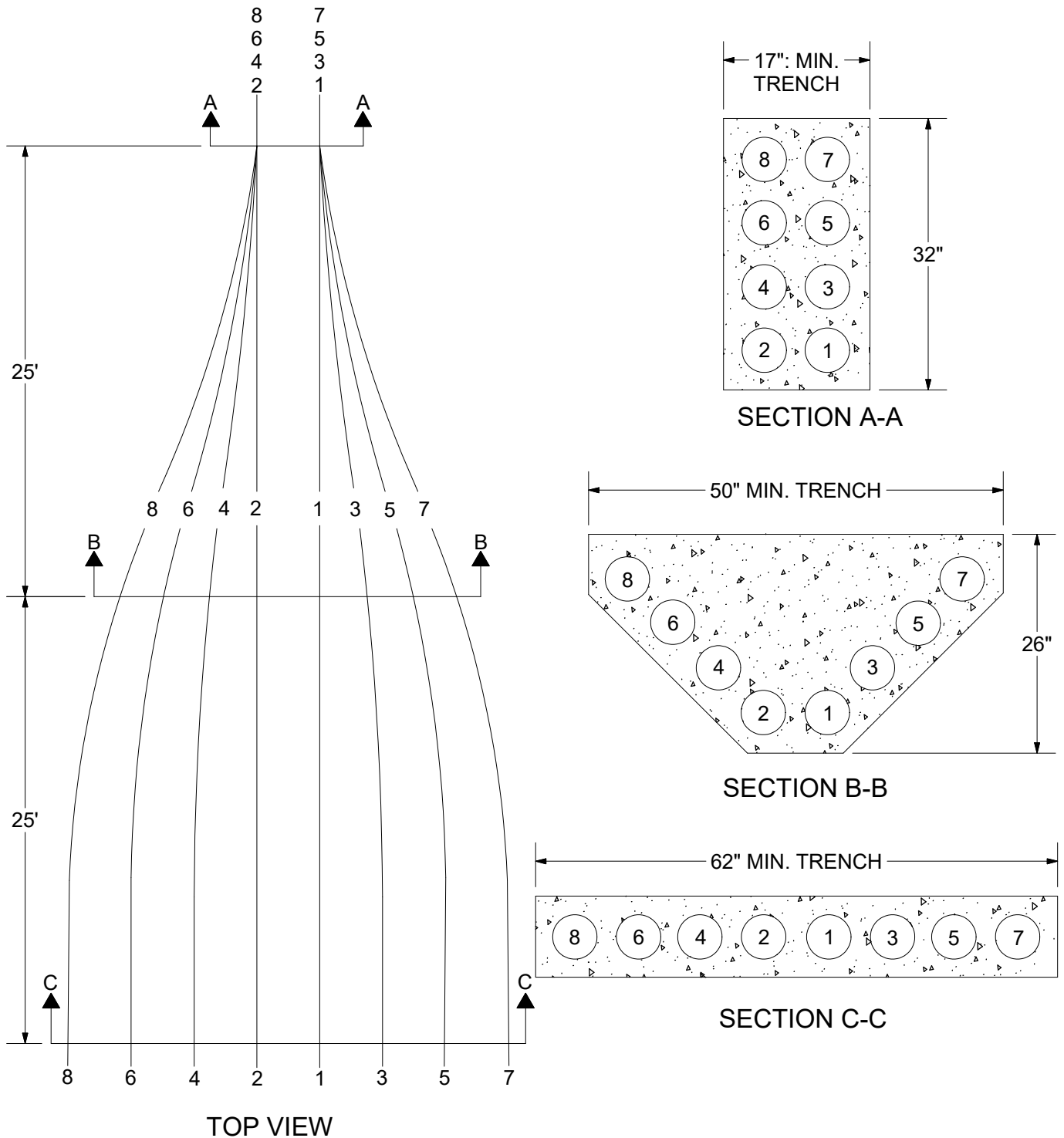
SECTION B-B



SECTION C-C

CONSTRUCTION NOTE(s):

1. Dimensions based on 5" conduit.
2. Spacer blocks shall be used to maintain conduit spacing during transposition.

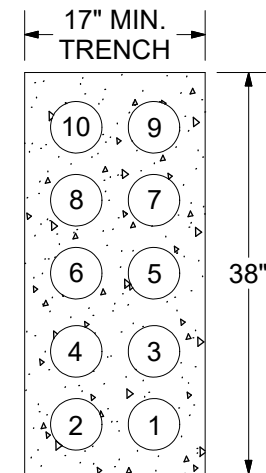
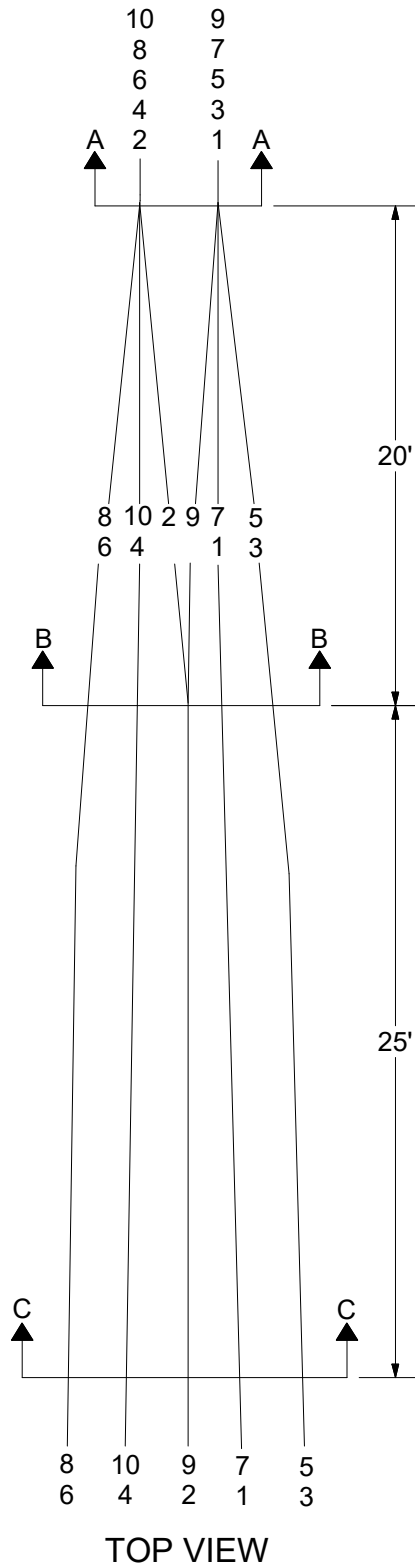


CONSTRUCTION NOTE(s)

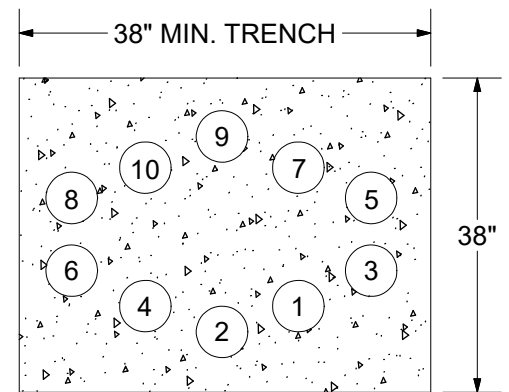
1. Dimensions base on 5" conduit.
2. Spacer blocks shall be used to maintain conduit spacing during transposition.

DISTRIBUTION CONSTRUCTION STANDARDS

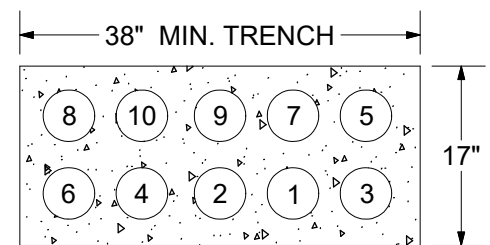
REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



SECTION A-A



SECTION B-B



SECTION C-C

CONSTRUCTION NOTE(s):

1. Dimensions based on 5" conduit.
2. Spacer blocks shall be used to maintain conduit spacing during transposition.



DUCT SYSTEMS
3 Ft. Average Trench Depth
No Paving Base

31 11 03 **

1 of 1

Quantity Per 100' Duct Run

	ITEM	STK / DCS #	DESCRIPTION	31 11 03 **	11	12	13	14
	A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400	600
	B	11 54 128	Block - Concrete Patio		25	50	50	50
	C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100
	D	98 00 014	Crushed Limestone		16	33	24	14
	E	98 00 007	Concrete - Conduit (C.Y.)		3	4	6	9
	F	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100	100
		RFIN	Op Code Rough Finish Concrete (S.F.)		100	160	160	160
@			Op Code Surface Removal (S.F.)		200	260	260	260
		36 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100
		835	Op Code Hauling Spoil		2	4	4	4
		ATMP	Op Code Tamping (S.F.)		200	320	320	320
@			Op Code Surface Replacement (S.F.)		200	260	260	260
		831	Op Code Rodding (Duct Feet)		100	200	400	600

DESIGN NOTE(s):

1. Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
2. The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

**DISTRIBUTION
CONSTRUCTION STANDARDS**

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



DUCT SYSTEMS

4 Ft. Average Trench Depth
No Paving Base

31 11 04 **

1 of 1

Quantity Per 100' Duct Run

	ITEM	STK / DCS #	DESCRIPTION	31 11 04 **	11	12	13	14	15	16
	A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400	600	800	1000
	B	11 54 128	Block - Concrete Patio		25	50	50	50	50	50
	C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125	150
	D	98 00 014	Crushed Limestone		24	48	38	28	19	10
	E	98 00 007	Concrete - Conduit (C.Y.)		3	4	6	9	11	14
	F	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100	100	100	100
		RFIN	Op Code Rough Finish Concrete (S.F.)		100	160	160	160	160	160
@			Op Code Surface Removal (S.F.)		200	260	260	260	260	260
		48 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100	100	100
		835	Op Code Hauling Spoil		3	6	6	6	6	6
		ATMP	Op Code Tamping (S.F.)		200	320	320	320	320	320
@			Op Code Surface Replacement (S.F.)		200	260	260	260	260	260
		831	Op Code Rodding (Duct Feet)		100	200	400	600	800	1000

DESIGN NOTE(s):

- Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
- The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

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REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



DUCT SYSTEMS

5 Ft. Average Trench Depth
No Paving Base

31 11 05 **

1 of 1

Quantity Per 100' Duct Run

	ITEM	STK / DCS #	DESCRIPTION	31 11 05 **	11	12	13	14	15	16
	A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400	600	800	1000
	B	11 54 128	Block - Concrete Patio		25	50	50	50	50	50
	C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125	150
	D	98 00 014	Crushed Limestone		31	62	52	43	33	24
	E	98 00 007	Concrete - Conduit (C.Y.)		3	5	8	11	14	17
	F	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100	100	100	100
@	RFIN		Op Code Rough Finish Concrete (S.F.)		100	185	185	185	185	185
			Op Code Surface Removal (S.F.)		200	285	285	285	285	285
	60 CBTRN		Op Code Backhoe Trenching (L.F.)		100	100	100	100	100	100
	835		Op Code Hauling Spoil		4	7	7	7	7	7
@	ATMP		Op Code Tamping (S.F.)		200	370	370	370	370	370
			Op Code Surface Replacement (S.F.)		200	285	285	285	285	285
	831		Op Code Rodding (Duct Feet)		100	200	400	600	800	1000

DESIGN NOTE(s):

1. Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
2. The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

DISTRIBUTION CONSTRUCTION STANDARDS

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1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



DUCT SYSTEMS
6 Ft. Average Trench Depth
No Paving Base

31 11 06 **

1 of 1

Quantity Per 100' Duct Run

	ITEM	STK / DCS #	DESCRIPTION	31 11 06 **	11	12	13	14	15	16
	A	12 01 335	Conduit - Plastic, 5" x 20', EB 35		100	200	400	600	800	1000
	B	11 54 128	Block - Concrete Patio		25	50	50	50	50	50
	C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125	150
	D	98 00 014	Crushed Limestone		38	76	66	56	47	38
	E	98 00 007	Concrete - Conduit (C.Y.)		3	5	8	11	14	17
	F	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100	100	100	100
@		RFIN	Op Code Rough Finish Concrete (S.F.)		100	185	185	185	185	185
			Op Code Surface Removal (S.F.)		200	285	285	285	285	285
		72 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100	100	100
		835	Op Code Hauling Spoil		5	9	9	9	9	9
@		ATMP	Op Code Tamping (S.F.)		200	370	370	370	370	370
			Op Code Surface Replacement (S.F.)		200	285	285	285	285	285
		831	Op Code Rodding (Duct Feet)		100	200	400	600	800	1000

NOTE(s):

1. Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
2. The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

**DISTRIBUTION
CONSTRUCTION STANDARDS**

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



DUCT SYSTEMS
7 Ft. Average Trench Depth
No Paving Base

31 11 07 **

1 of 1

Quantity Per 100' Duct Run

	ITEM	STK / DCS #	DESCRIPTION	31 11 07 **	Quantity Per 100' Duct Run					
					11	12	13	14	15	16
@	A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400	600	800	1000
	B	11 54 128	Block - Concrete Patio		25	50	50	50	50	50
	C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125	150
	D	98 00 014	Crushed Limestone		45	90	81	71	62	52
	E	98 00 007	Concrete - Conduit (C.Y.)		3	5	8	11	14	17
	F	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100	100	100	100
		RFIN	Op Code Rough Finish Concrete (S.F.)		100	185	185	185	185	185
			Op Code Surface Removal (S.F.)		200	285	285	285	285	285
		84 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100	100	100
		835	Op Code Hauling Spoil		5	10	10	10	10	10
		ATMP	Op Code Tamping (S.F.)		200	370	370	370	370	370
			Op Code Surface Replacement (S.F.)		200	285	285	285	285	285
@		831	Op Code Rodding (Duct Feet)		100	200	400	600	800	1000

DESIGN NOTE(s):

1. Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
2. The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

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CONSTRUCTION STANDARDS**

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0	01/09/13	DDG	



DUCT SYSTEMS
8 Ft. Average Trench Depth
No Paving Base

31 11 08 **

1 of 1

Quantity Per 100' Duct Run

	ITEM	STK / DCS #	DESCRIPTION	31 11 08 **	11	12	13	14	15	16
	A	12 01 335	Conduit - Plastic, 5" x 20', EB 35		100	200	400	600	800	1000
	B	11 54 128	Block - Concrete Patio		25	50	50	50	50	50
	C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125	150
	D	98 00 014	Crushed Limestone		52	105	95	86	76	67
	E	98 00 007	Concrete - Conduit (C.Y.)		3	5	8	11	14	17
	F	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100	100	100	100
		RFIN	Op Code Rough Finish Concrete (S.F.)		100	185	185	185	185	185
@			Op Code Surface Removal (S.F.)		200	285	285	285	285	285
		96 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100	100	100
		835	Op Code Hauling Spoil		6	12	12	12	12	12
		ATMP	Op Code Tamping (S.F.)		200	370	370	370	370	370
@			Op Code Surface Replacement (S.F.)		200	285	285	285	285	285
		831	Op Code Rodding (Duct Feet)		100	200	400	600	800	1000

DESIGN NOTE(s):

1. Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
2. The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

**DISTRIBUTION
CONSTRUCTION STANDARDS**

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



DUCT SYSTEMS
3 Ft. Average Trench Depth
With Paving Base (9" Concrete)

31 12 03 **

1 of 1

Quantity Per 100' Duct Run

	ITEM	STK / DCS #	DESCRIPTION	31 12 03 **	11	12	13
	A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400
	B	11 54 128	Block - Concrete Patio		25	50	50
	C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75
	D	98 00 014	Crushed Limestone		10	19	10
	E	98 00 007	Concrete - Conduit (C.Y.)		3	4	6
	G	98 00 001	Concrete Paving Base		3	5	5
	F	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100
@		RFIN	Op Code Rough Finish Concrete (S.F.)		200	320	320
			Op Code Surface Removal (S.F.)		200	260	260
		36 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100
		835	Op Code Hauling Spoil		2	4	4
@		ATMP	Op Code Tamping (S.F.)		200	320	320
			Op Code Surface Replacement (S.F.)		200	260	260
		831	Op Code Rodding (Duct Feet)		100	200	400

DESIGN NOTE(s):

1. Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
2. The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

**DISTRIBUTION
CONSTRUCTION STANDARDS**

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



DUCT SYSTEMS
4 Ft. Average Trench Depth
With Paving Base (9" Concrete)

31 12 04 **

1 of 1

Quantity Per 100' Duct Run

	ITEM	STK / DCS #	DESCRIPTION	31 12 04 **	11	12	13	14	15
	A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400	600	800
	B	11 54 128	Block - Concrete Patio		25	50	50	50	50
	C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125
		98 00 014	Crushed Limestone		17	33	24	14	4
	D	98 00 007	Concrete - Conduit (C.Y.)		3	4	6	9	11
	E	98 00 001	Concrete - Paving Base		3	5	5	5	5
	F	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100	100	100
		RFIN	Op Code Rough Finish Concrete (S.F.)		200	320	320	320	320
@			Op Code Surface Removal (S.F.)		100	260	260	260	260
		48 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100	100
		835	Op Code Hauling Spoil		3	6	6	6	6
		ATMP	Op Code Tamping (S.F.)		200	320	320	320	320
@			Op Code Surface Replacement (S.F.)		200	260	260	260	260
		831	Op Code Rodding (Duct Feet)		100	200	400	600	800

DESIGN NOTE(s):

1. Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
2. The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

**DISTRIBUTION
CONSTRUCTION STANDARDS**

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



DUCT SYSTEMS

5 Ft. Average Trench Depth
With Paving Case (9" Concrete)

31 12 05 **

1 of 1

Quantity Per 100' Duct Run

ITEM	STK / DCS #	DESCRIPTION	31 12 05 **	11	12	13	14	15	16
A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400	600	800	1000
B	11 54 128	Block - Concrete Patio		25	50	50	50	50	50
C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125	150
D	98 00 014	Crushed Limestone		24	48	38	29	19	10
E	98 00 007	Concrete - Conduit (C.Y.)		3	5	8	11	14	17
F	98 00 001	Concrete - Paving Base		3	6	6	6	6	6
G	18 52 030	Wire - 4/0 Cu S.D. (Ft.)		100	100	100	100	100	100
@	RFIN	Op Code Rough Finish Concrete (S.F.)		200	370	370	370	370	370
		Op Code Surface Removal (S.F.)		100	285	285	285	285	285
	60 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100	100	100
	835	Op Code Hauling Spoil		4	7	7	7	7	7
@	ATMP	Op Code Tamping (S.F.)		200	370	370	370	370	370
		Op Code Surface Replacement (S.F.)		200	285	285	285	285	285
	831	Op Code Rodding (Duct Feet)		100	200	400	600	800	1000

DESIGN NOTE(s):

1. Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
2. The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

DISTRIBUTION CONSTRUCTION STANDARDS

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/19/13	DDG	



DUCT SYSTEMS

6 Ft. Average Trench Depth
With Paving Base (9" Concrete)

31 12 06 **

1 of 1

Quantity Per 100' Duct Run

ITEM	STK / DCS #	DESCRIPTION	31 12 06 **	11	12	13	14	15	16
A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400	600	800	1000
B	11 54 128	Block - Concrete Patio		25	50	50	50	50	50
C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125	150
D	98 00 014	Crushed Limestone		31	62	52	43	33	24
E	98 00 007	Concrete - Conduit (C.Y.)		3	5	8	11	14	17
F	98 00 001	Concrete - Paving Base		3	6	6	6	6	6
G	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100	100	100	100
@	RFIN	Op Code Rough Finish Concrete (S.F.)		200	370	370	370	370	370
		Op Code Surface Removal (S.F.)		100	285	285	285	285	285
	72 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100	100	100
	835	Op Code Hauling Spoil		5	9	9	9	9	9
	ATMP	Op Code Tamping (S.F.)		200	370	370	370	370	370
@		Op Code Surface Replacement (S.F.)		200	285	285	285	285	285
	831	Op Code Rodding (Duct Feet)		100	200	400	600	800	1000

DESIGN NOTE(s):

- Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
- The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

DISTRIBUTION CONSTRUCTION STANDARDS

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



DUCT SYSTEMS
7 Ft. Average Trench Depth
With Paving Base (9" Concrete)

31 12 07 **

1 of 1

Quantity Per 100' Duct Run

	ITEM	STK / DCS #	DESCRIPTION	31 12 07 **	11	12	13	14	15	16
	A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400	600	800	1000
	B	11 54 128	Block - Concrete Patio		25	50	50	50	50	50
	C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125	150
	D	98 00 014	Crushed Limestone		38	76	67	57	48	38
	E	98 00 007	Concrete - Conduit (C.Y.)		3	5	8	11	14	17
	F	98 00 001	Concrete - Paving Base		3	6	6	6	6	6
	G	18 52 030	Wire - 4/0 Cu S.D. (Ft.)		100	100	100	100	100	100
		RFIN	Op Code Rough Finish Concrete (S.F.)		200	370	370	370	370	370
@			Op Code Surface Removal (S.F.)		100	285	285	285	285	285
		84 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100	100	100
		835	Op Code Hauling Spoil		5	10	10	10	10	10
		ATMP	Op Code Tamping (S.F.)		200	370	370	370	370	370
@			Op Code Surface Replacement (S.F.)		200	285	285	285	285	285
		831	Op Code Rodding (Duct Feet)		100	200	400	600	800	1000

DESIGN NOTE(s):

1. Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
2. The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

**DISTRIBUTION
CONSTRUCTION STANDARDS**

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/09/13	DDG	



DUCT SYSTEMS
8 Ft. Average Trench Depth
With Paving Base (9" Concrete)

31 12 08 **

1 of 1

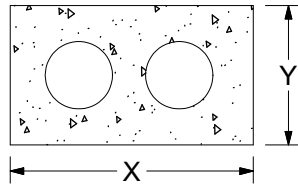
Quantity Per 100' Duct Run

ITEM	STK / DCS #	DESCRIPTION	31 12 08 **	11	12	13	14	15	16
A	12 01 335	Conduit - PVC, 5" x 20', EB 35		100	200	400	600	800	1000
B	11 54 128	Block - Concrete Patio		25	50	50	50	50	50
C	12 56 120	Plastic Spacer - Conduit 5"		50	50	75	100	125	150
D	98 00 014	Crushed Limestone		46	90	81	72	60	52
E	98 00 007	Concrete - Conduit (C.Y.)		3	5	8	11	14	17
F	98 00 001	Concrete - Paving Base		3	6	6	6	6	6
G	18 52 030	Wire, 4/0 Cu S.D. (Ft.)		100	100	100	100	100	100
@	RFIN	Op Code Rough Finish Concrete (s.f.)		200	370	370	370	370	370
		Op Code Surface Removal (S.F.)		100	285	285	285	285	285
	96 CBTRN	Op Code Backhoe Trenching (L.F.)		100	100	100	100	100	100
	835	Op Code Hauling Spoil		6	12	12	12	12	12
	ATMP	Op Code Tamping (S.F.)		200	370	370	370	370	370
@		Op Code Surface Replacement (S.F.)		200	285	285	285	285	285
	831	Op Code Rodding (Duct Feet)		100	200	400	600	800	1000

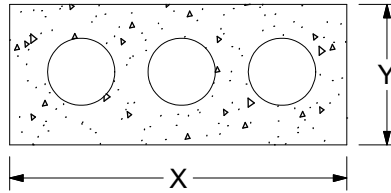
DESIGN NOTE(s):

- Estimator to show duct construction in units of "Feet", i.e., 180 Ft. duct run, should be shown as 180 in quan. column. Computer will interpret 180 as 180% and multiply units listed above by 1.8 to obtain desired results.
- The quantity shown in the adder item is for a duct run of 100'. For a duct run other than 100', the quantity of the adder item (@) must be adjusted by the estimator.

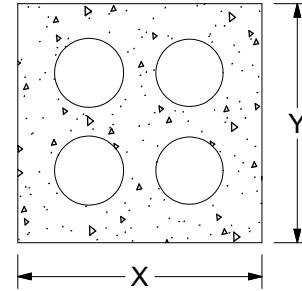
ILLINOIS ONLY



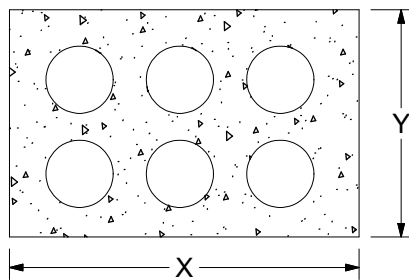
31 13 01 02
2-DUCTS



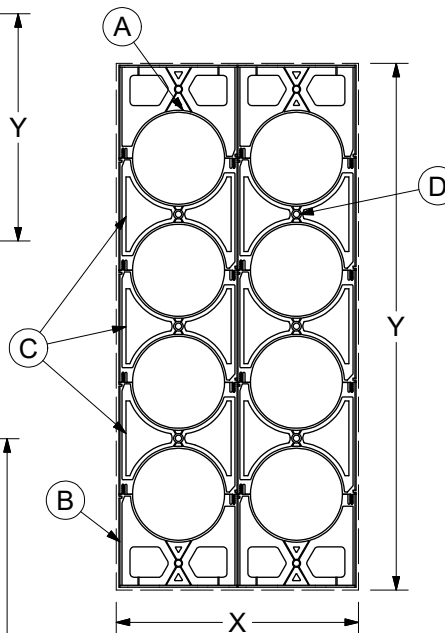
31 13 01 03
3-DUCTS



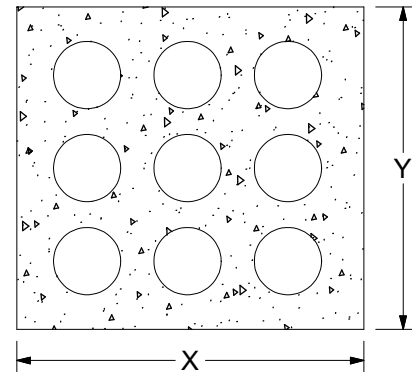
31 13 01 04
4-DUCTS



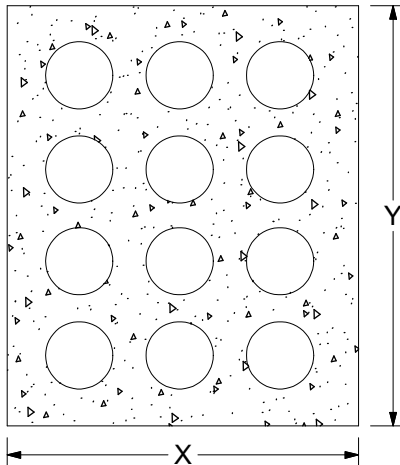
31 13 01 06
6-DUCTS



31 13 01 08
8-DUCTS



31 13 01 09
9-DUCTS



31 13 01 12
12-DUCTS

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/11/13	DDG	



DUCT SYSTEMS

Encased Conduit Formations
5" EB Conduit

31 13 01 **

2 of 2

ILLINOIS ONLY

CONSTRUCTION NOTE(s):

1. Spacers should be installed every 10 Ft. for straight runs.
2. Use extra spacers on large sweeps in a duct run. Sweeps need more spacers placed closer together.
3. To keep conduits from floating when the concrete is poured, attach the duct bank to rebar stakes with rebar tie wire. Contractors usually supply the rebar and tie wire.

DCS #	NUMBER OF DUCTS	DEMINSIONS	
		X	Y
31 13 01 02	2	17-3/4"	10-3/4"
31 13 01 03	3	24-3/4"	10-3/4"
31 13 01 04	4	17-1/4"	17-3/4"
31 13 01 06	6	24-3/4"	17-3/4"
31 13 01 08	8	17-1/4"	31-3/4"
31 13 01 09	9	24-3/4"	24-3/4"
31 13 01 12	12	24-3/4"	31-3/4"

ITEM	STK / DCS #	DESCRIPTION	31 13 01 **	02	03	04	06	08	09	12
A	12 01 335	Conduit - PVC, 5" x 20', EB 35		40	60	80	120	160	180	240
B	40 83 015	Spacer - Conduit, 5", Base		4	6	4	6	4	6	6
C	40 83 016	Spacer - Conduit, 5", Intermediate		-	-	4	6	12	12	18
D	98 00 007	Concrete - Conduit (Cu. Yd.)		0.74	1.01	1.10	1.53	1.85	2.05	2.58

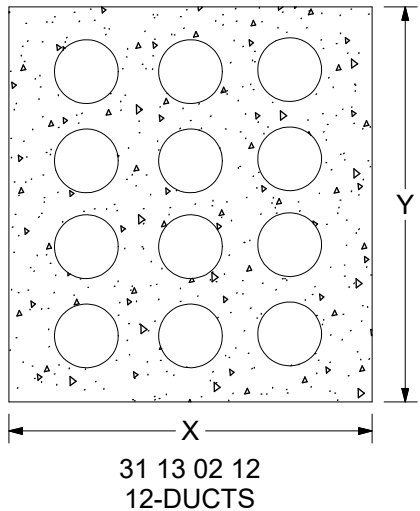
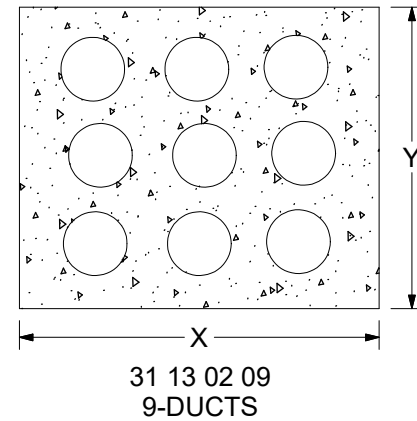
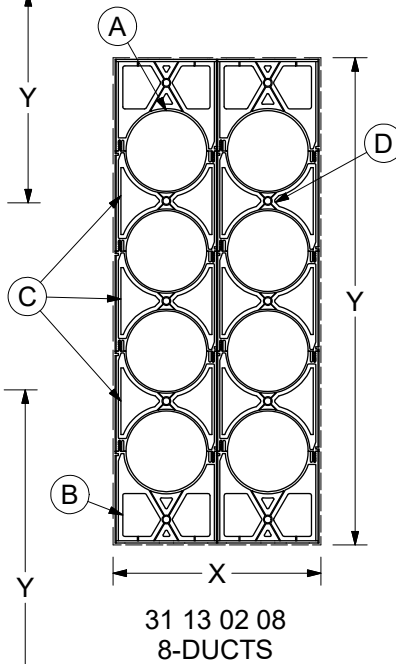
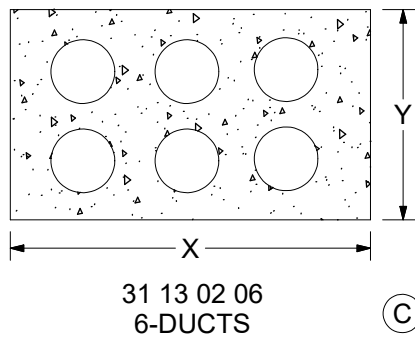
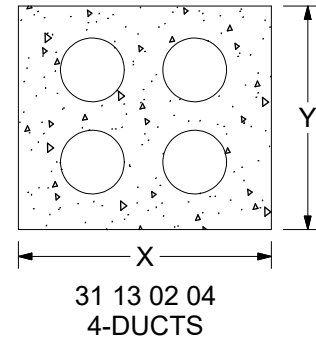
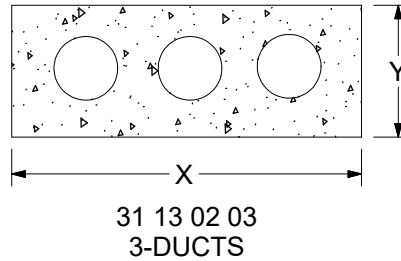
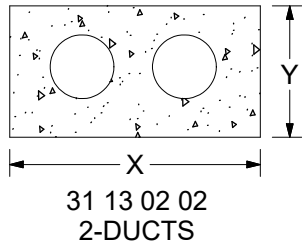
DESIGN NOTE(s):

4. Each DCS includes material for a 20 Ft. duct formation.

DISTRIBUTION CONSTRUCTION STANDARDS

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/11/13	DDG	

ILLINOIS ONLY





DUCT SYSTEMS

Encased Conduit Formation
4" EB Conduit

31 13 02 **

2 of 2

ILLINOIS ONLY

CONSTRUCTION NOTE(s):

1. Spacers should be installed every 10 ft. for straight runs.
2. Use extra spacers on large sweeps in a duct run. Sweeps need more spacers placed closer together.
3. To keep conduits from floating when the concrete is poured, attach the duct bank to rebar stakes with rebar tie wire. Contractors usually supply the rebar and tie wire.

DCS #	NUMBER OF DUCTS	DIMENSIONS	
		X	Y
31 13 02 02	2	15"	9-1/2"
31 13 02 03	3	21-1/2"	9-1/2"
31 13 02 04	4	15"	15-1/2"
31 13 02 06	6	21-1/2"	15-1/2"
31 13 02 08	8	15"	27-1/2"
31 13 02 09	9	21-1/2"	21-1/2"
31 13 02 12	12	21-1/2"	27-1/2"

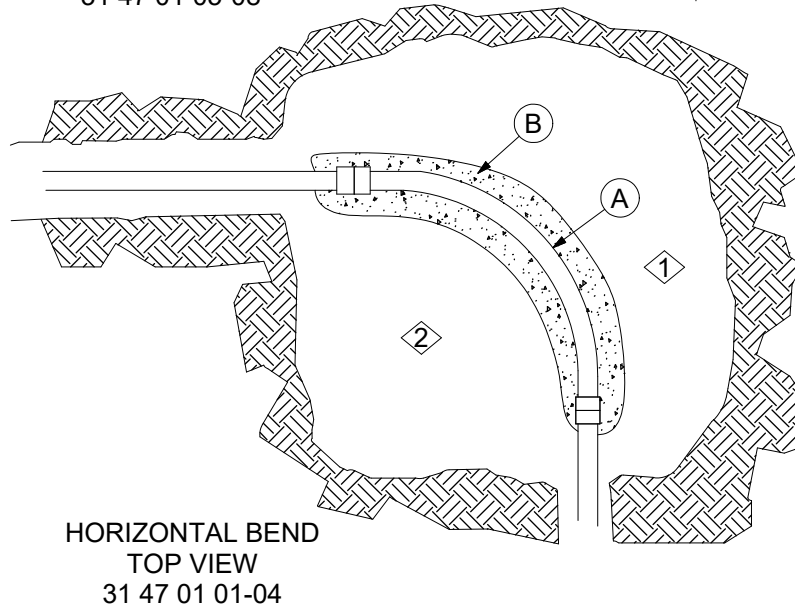
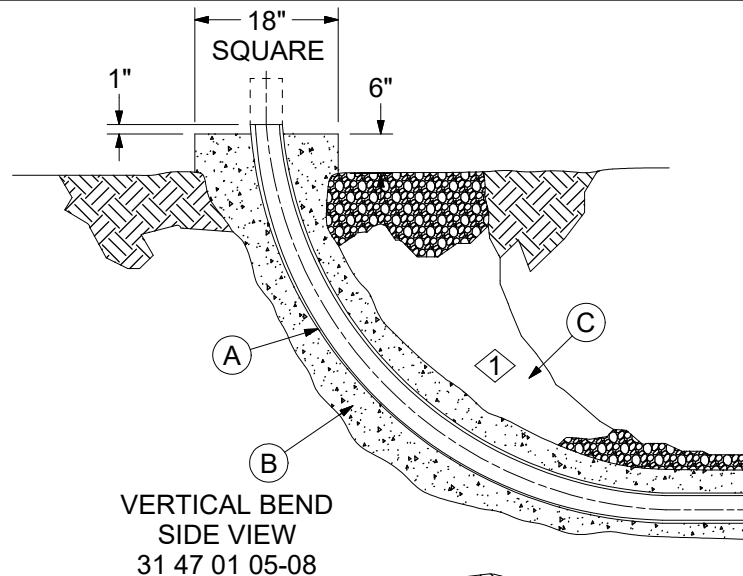
ITEM	STK/DCS #	DESCRIPTION	31 13 02 **	02	03	04	06	08	09	12
A	12 01 337	Conduit - PVC, 4" x 20', EB 35		40	60	80	120	160	180	240
B	40 83 014	Spacer- Conduit , 4", Base		4	6	4	6	4	6	6
C	40 83 013	Spacer- Conduit , 4", Intermediate		-	-	4	6	12	12	18
D	98 00 007	Concrete - Conduit (Cu. Yd.)		0.57	0.81	0.87	1.22	1.47	1.65	2.08

DESIGN NOTE(s):

4. Each DCS includes material for a 20 ft. duct formation.

DISTRIBUTION CONSTRUCTION STANDARDS

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	01/11/13	DDG	



CONSTRUCTION NOTE(s):

- 1 Normal encasement is approximately 5". Minimum encasements is 3".
- 2 Compact soil around bend and concrete.

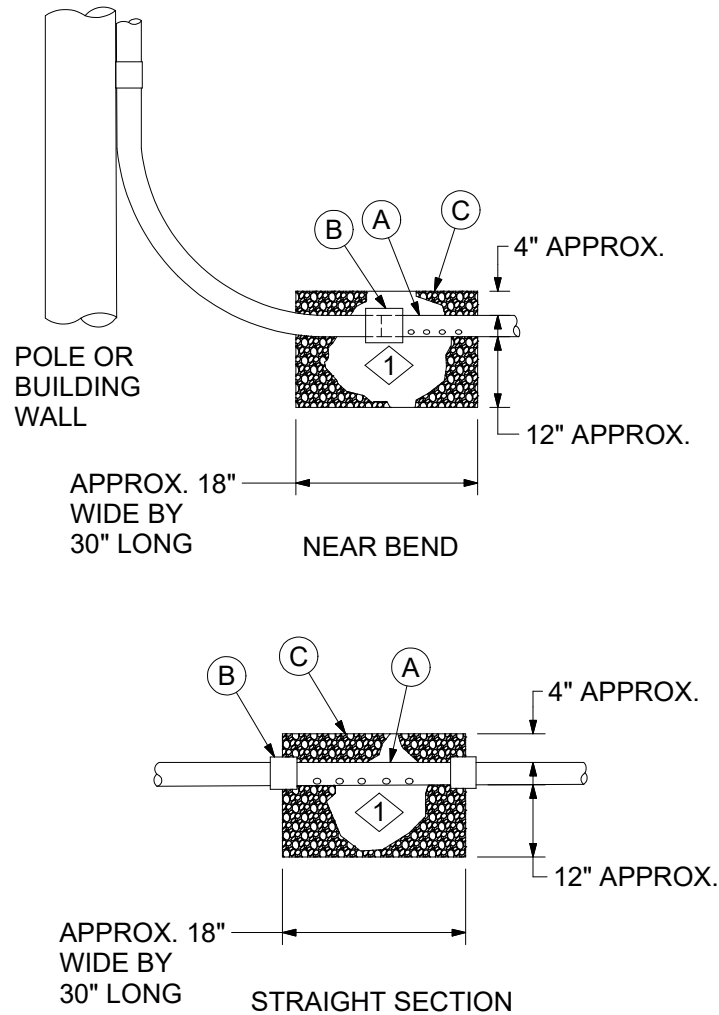
ITEM	STK / DCS #	DESCRIPTION	31 47 01 **	01	02	03	04	05	06	07	08
A	12 51 180	Bend 2" x 36" Rad.		1	-	-	-	1	-	-	-
	12 51 173	Bend 3" x 36" Rad.		-	1	-	-	-	1	-	-
	12 51 176	Bend 4" x 36" Rad.		-	-	1	-	-	-	1	-
	12 51 206	Bend 5" x 36" Rad.		-	-	-	1	-	-	-	1
B	11 04 105	Concrete or Flowable fill (C.Y.)		4	5	6	7	6	7	8	9
C	98 00 014	Crushed Rock C.Y.		-	-	-	-	1/2	1/2	1/2	1/2
@	36 CBTRN	Op Code Backhoe Trench (L.F.)		4	4	4	4	4	4	4	4

DESIGN NOTES(s):

3. For use with conduit bends to terminal poles and switchgear.

DISTRIBUTION CONSTRUCTION STANDARDS

REV	DATE	ENG	DESCRIPTION
1	01/01/23	JMW	Converted to new format
0	02/08/95	DDG	



CONSTRUCTION NOTE(s):

1. Drill six 1/2" diameter holes on 4" centers.

ITEM	STK / DCS #	DESCRIPTION	31 47 02 **	01	02	03	04
A	12 01 280	Conduit - PVC, 2" x 10', Sch. 40	1	-	-	-	-
	12 01 279	Conduit - PVC, 3" x 10', Sch. 40	-	1	-	-	-
	12 01 278	Conduit - PVC, 4" x 10', Sch. 40	-	-	1	-	-
	12 01 330	Conduit - PVC, 5" x 10', Sch. 40	-	-	-	1	-
B	12 51 181	Coupling 2"	2	-	-	-	-
	12 51 158	Coupling 3"	-	2	-	-	-
	12 51 157	Coupling 4"	-	-	2	-	-
	12 51 156	Coupling 5"	-	-	-	2	-
@ C	98 00 014	Rock, Crushed, Clean	#	#	#	#	#