CONDITION EVALUATION AND LOAD RATING REPORT 2014

CITY OF MILL CITY
HISTORIC PEDESTRIAN RAILROAD BRIDGE

Presented by

Greg Ausland, PE, Project Manager
Stewart McCornack, Lead Bridge Inspector
Tony LaMorticella, PE, SE, Structural Engineer

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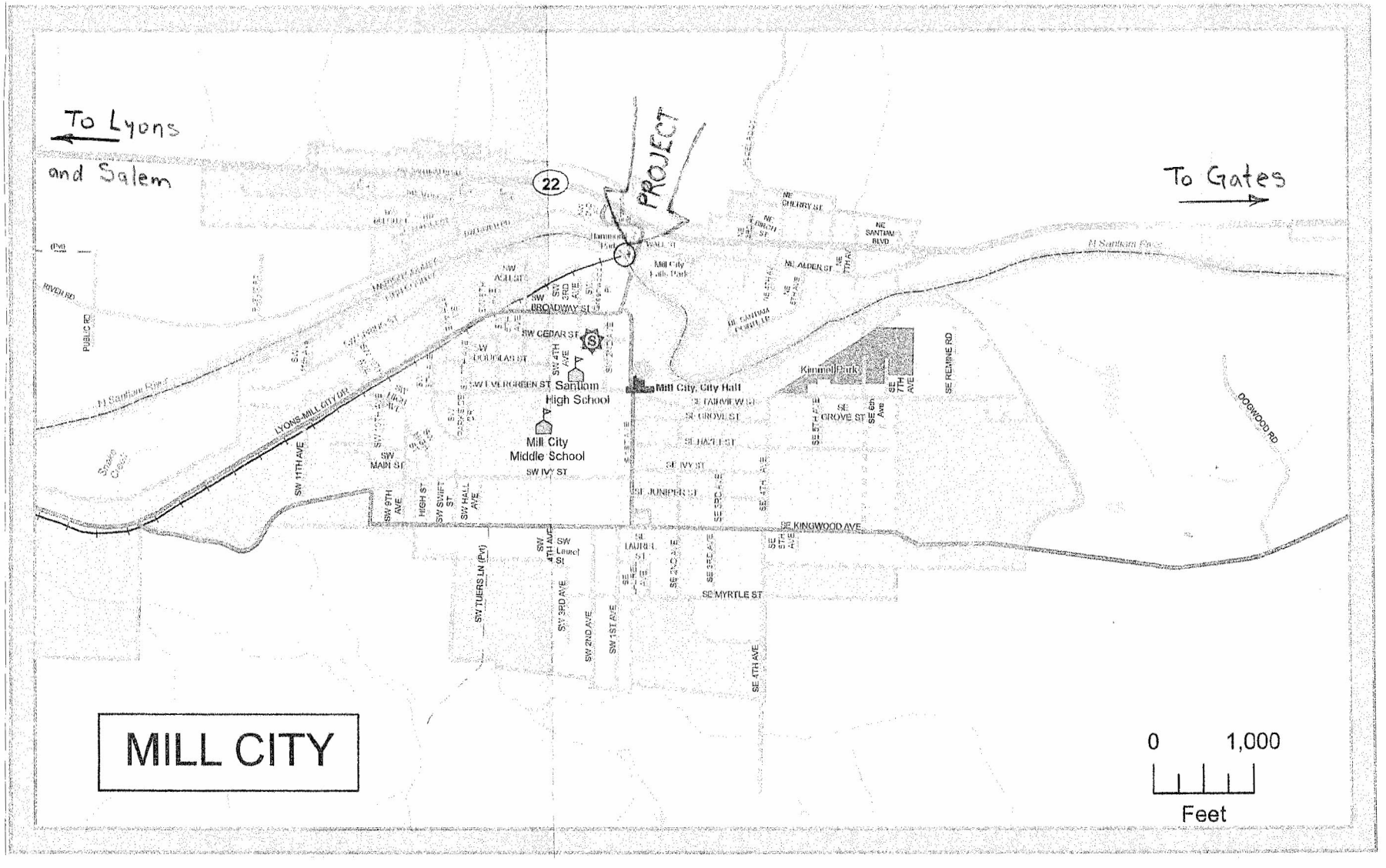
APPENDIX A

FIELD NOTES



VICINITY MAP

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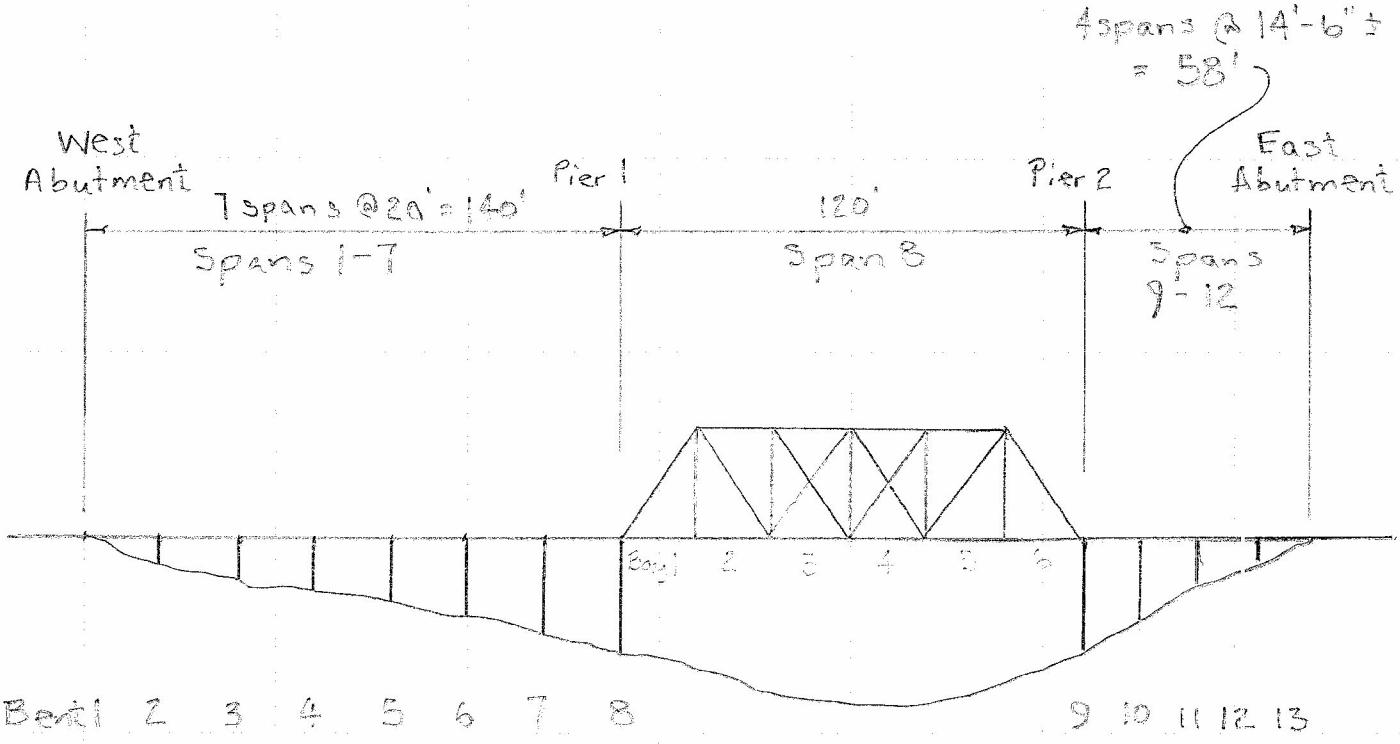
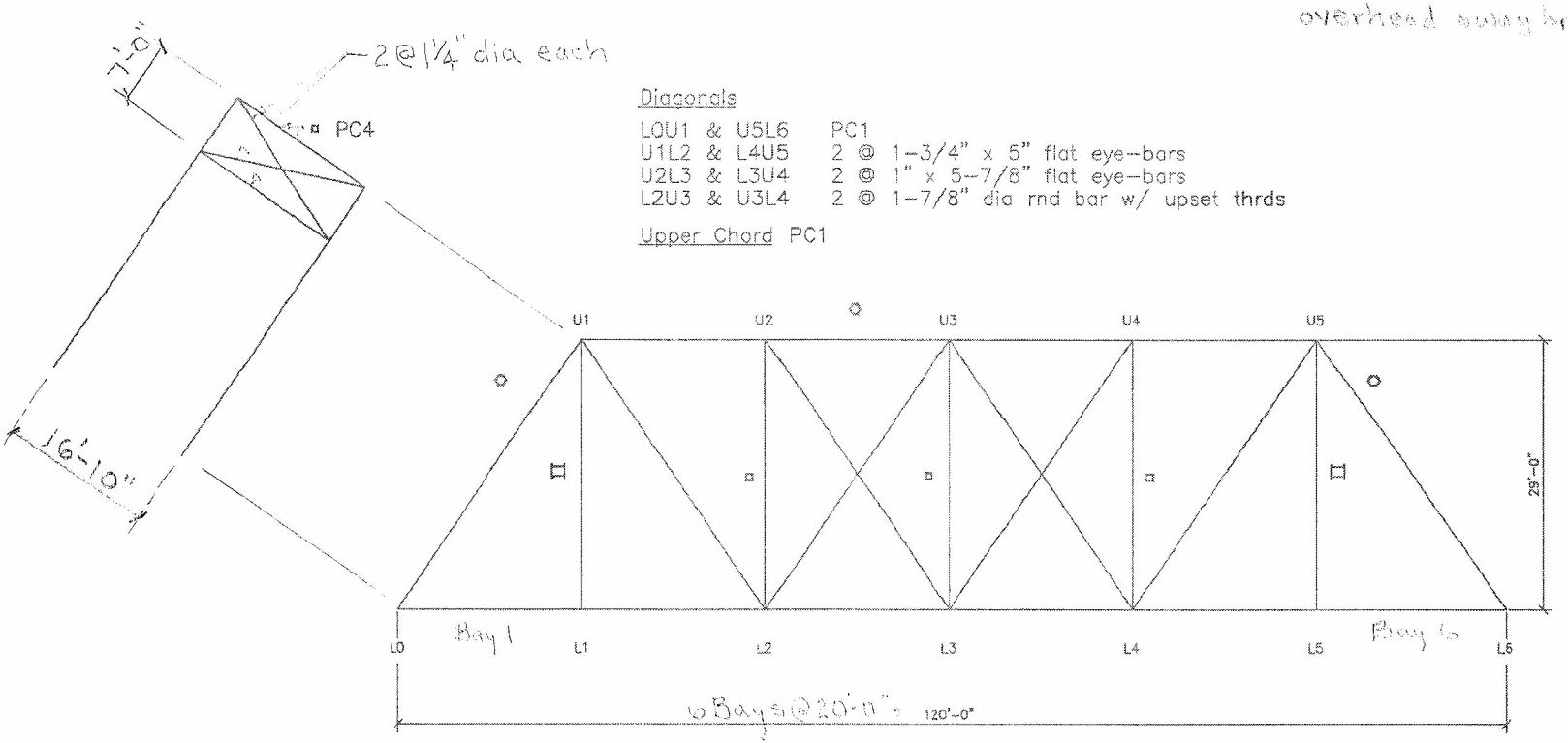


ELEVATION
1" = 30'

Mill City Pedestrian Bridge Truss Elevation

overhead sway bracing 1 1/2" dia



Diagonals

L0U1 & U5L6	PC1
U1L2 & L4U5	2 @ 1-3/4" x 5" flat eye-bars
U2L3 & L3U4	2 @ 1" x 5-7/8" flat eye-bars
L2U3 & U3L4	2 @ 1-7/8" dia rnd bar w/ upset thrds

Upper Chord PC1

Bottom Chord – flat eye-bar

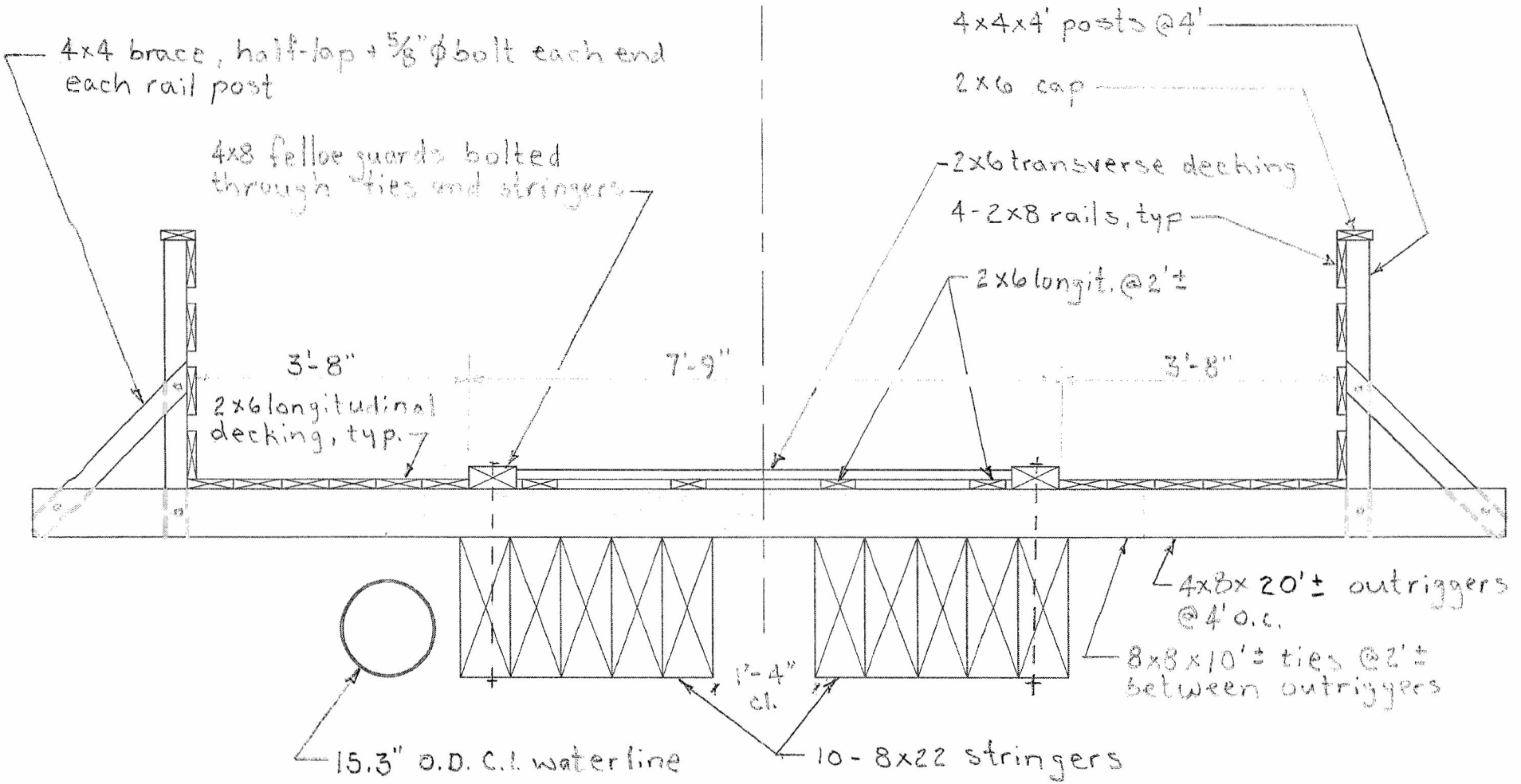
L0L1, L5L6, L1L2 & L4L5	2 @ 1-3/8" x 5-1/8"
L2L3 & L3L4	2 @ 1-3/8" x 5" + 2 @ 1-1/4" x 4"

Verticals

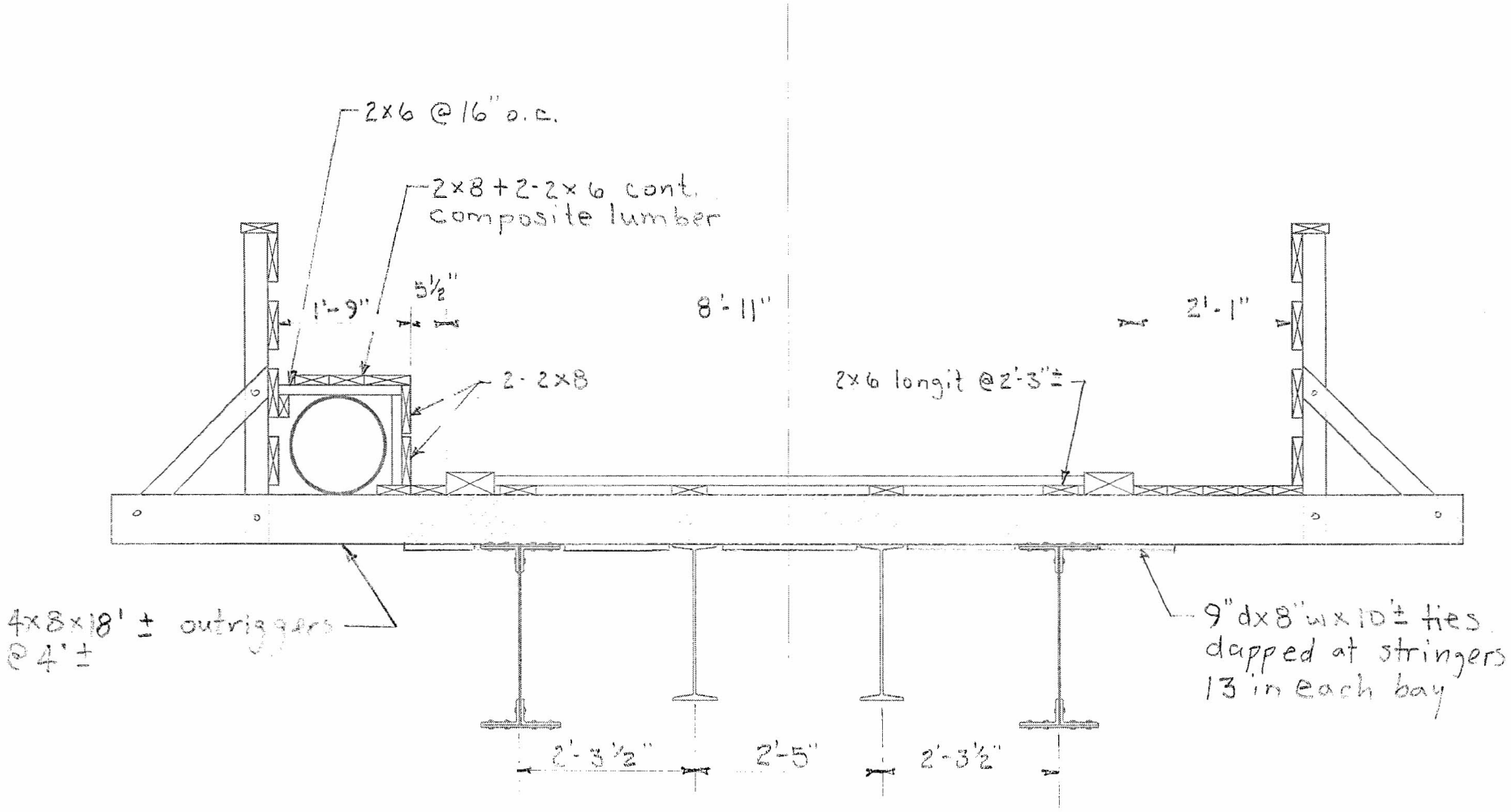
L1U1 & L5U5	BUC
L2U2 & L4U4	PC2
L3U3	PC3

Concrete piers are worn but do not show distress

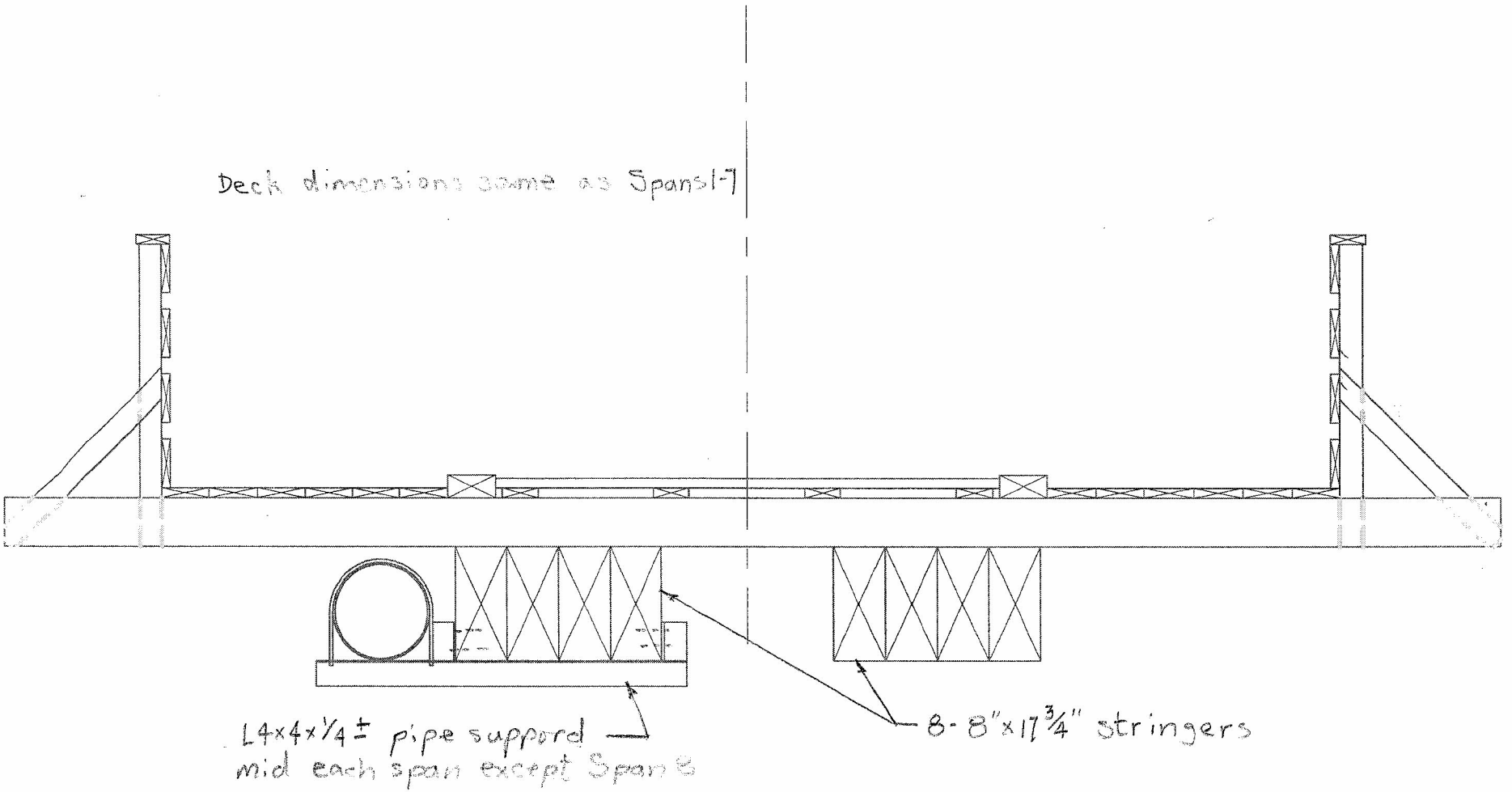
DECK SECTION SPANS 1–7



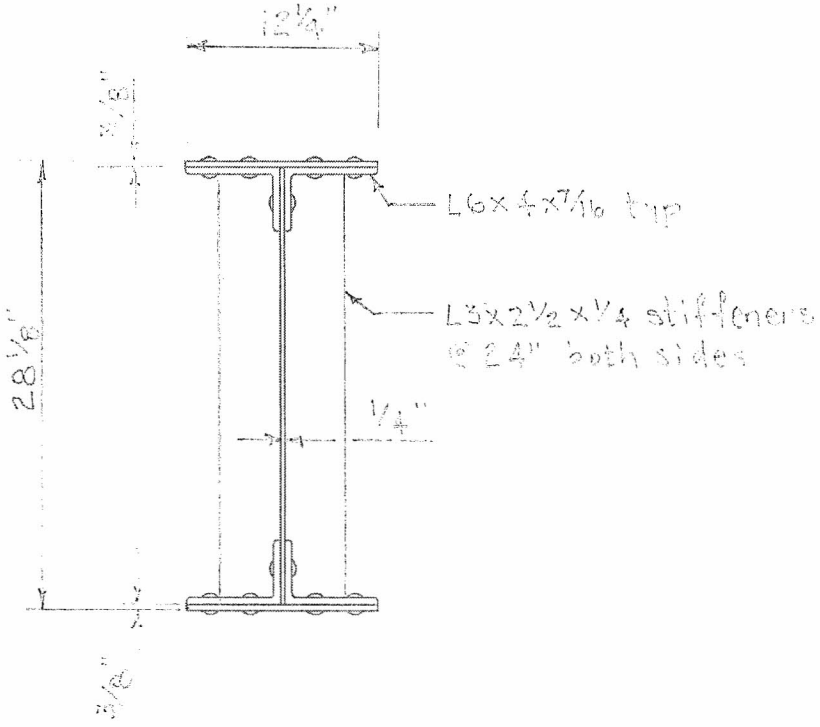
DECK SECTION SPAN 8



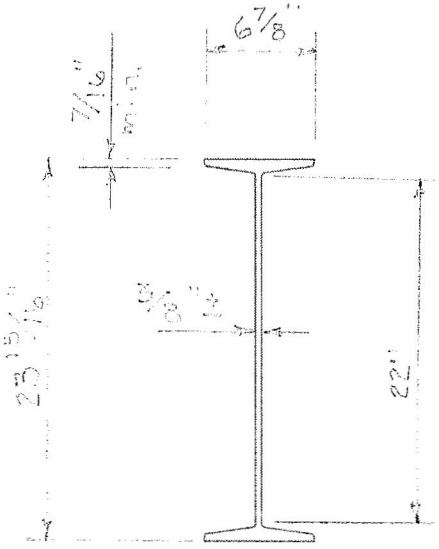
DECK SECTION SPANS 9–12



SPAN 8 STRINGERS



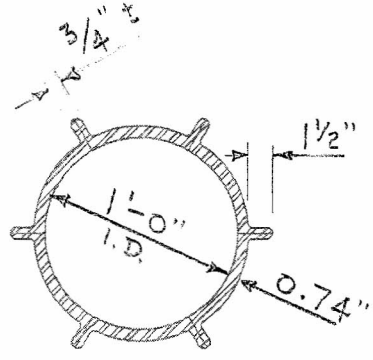
TYPICAL STRINGER IN SPAN 8



Rolled section - No stiffeners

STRINGERS 2 & 3 IN BAYS 1 & 6

PHOENIX COLUMN SECTIONS

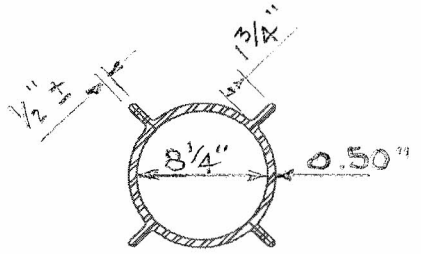


Segments riveted, typ

UPPER CHORDS (U1U5) AND END DIAGONALS (L0U1 & U5L6)

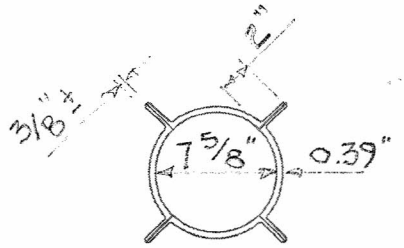
PC1

PHOENIX COLUMN SECTIONS



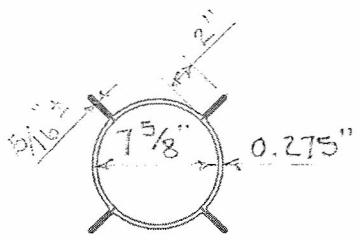
VERTICALS L2U2 & L4U4

PC 2



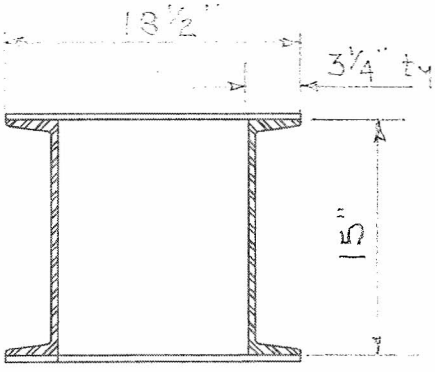
VERTICALS L3U3

PC3



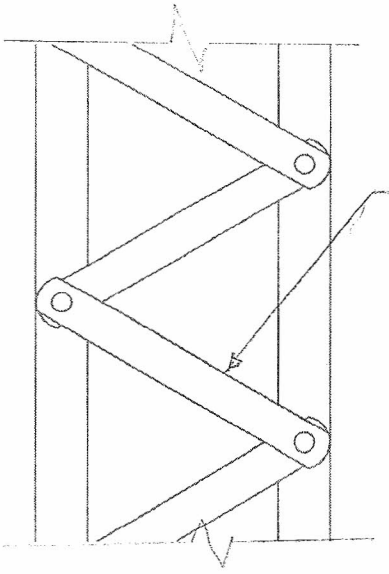
UPPER TRANSVERSE BTW TRUSSES AT U1 & U5 AND 7' BELOW ALONG L0U1 & U5L6

PC4



Channel flanges taper
⅜" → ¾"

Channel webs stamped
"ILLINOIS USA-S"
Some show minor
corrosion



BUILT-UP COLUMNS AT L1U1 & L5U5

BUC

Mill City Pedestrian Bridge Stringer Plan

NORTH

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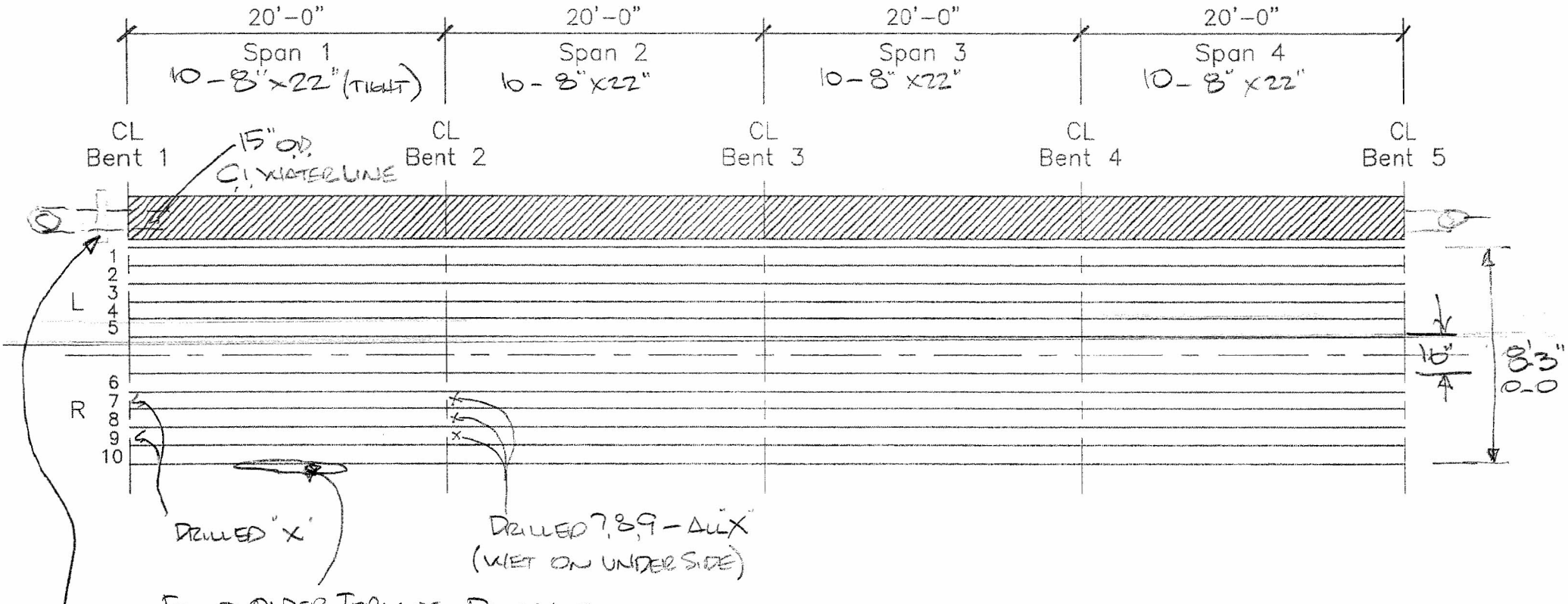
T. LAMORTICELLA
DATE 11-17-2014
AUSLAND GROUP ENGINEERS



TIES ARE MIXED 8"x8"x9' @24" CTRS. WITH 4"x8"x20' OUTRIGGERS @ 48" CTRS (TYPICAL)

NOTE! EXT. BEAMS 1 & 10 APPEAR TO BE REUSED W/ EXTRA BOLT HOLES, TYPICAL - ALL SPANS.

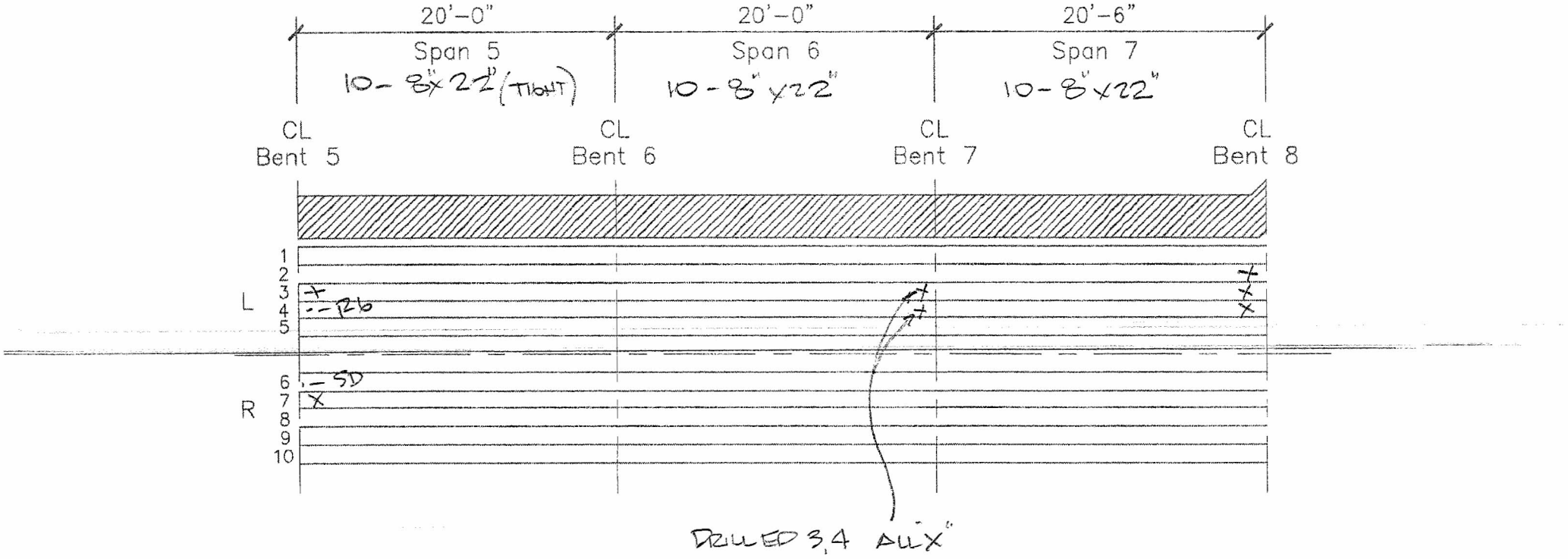
Mill City Pedestrian Bridge Stringer Plan

NORTH

INSPECTORS S. McCORMACK
T. LAMORTICELLA
DATE 11-17-2014

AUSLAND GROUP ENGINEERS

DECK PLANKS WERE REMOVED WHERE SUSPICIOUS CONDITIONS EXISTED, REMOVED AND REPLACED BY CITY MAINTENANCE FORCES.



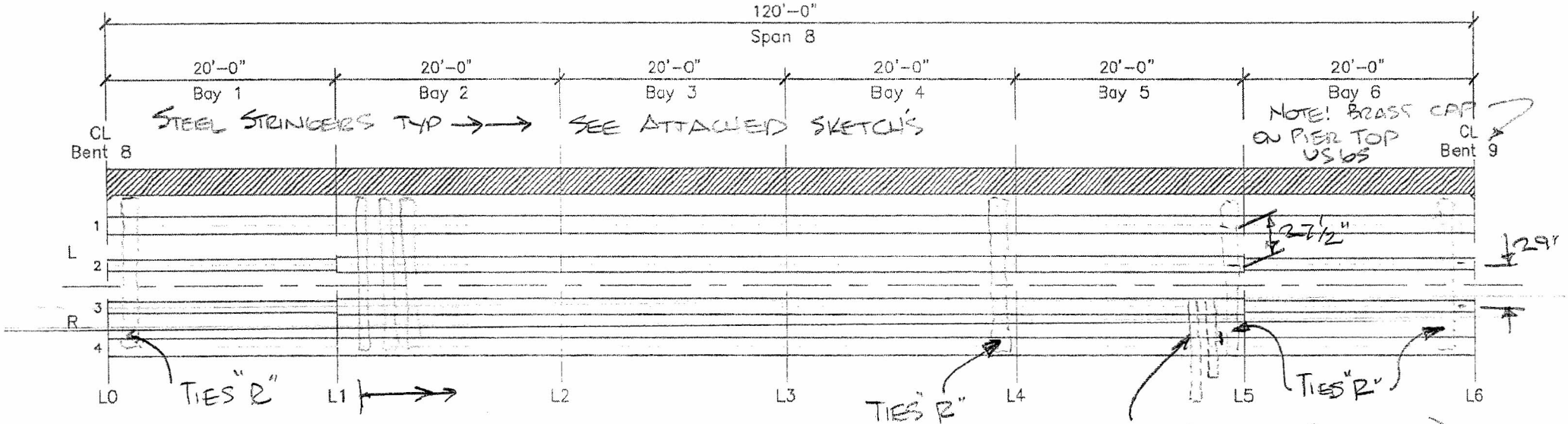
X = GOOD WOOD
R = DECAYED
SD = STARTING DECAY
W = WET

Mill City Pedestrian Bridge Stringer Plan

NORTH

DECK PLANKS WERE REMOVED AT RANDOM FOR OBSERVATION AND REPLACED BY CITY MAINTENANCE FORCES.

INSPECTORS S. McCORNACK
T. LAMORTICELLA
DATE 11-17-2014
ASLAND GROUP ENGINEERS



13 TIES EA. BAY

9" DEEP X 8" WIDE X 10' LONG

1" DAP OVER STRINGERS HOLDS TIES IN PLACE

4" X 8" X 18' JOISTS & OUTLOOKER BETWEEN (TYPICAL)

RAIL BRACES (OUTLOOKER) AND JOISTS ARE DECAYED

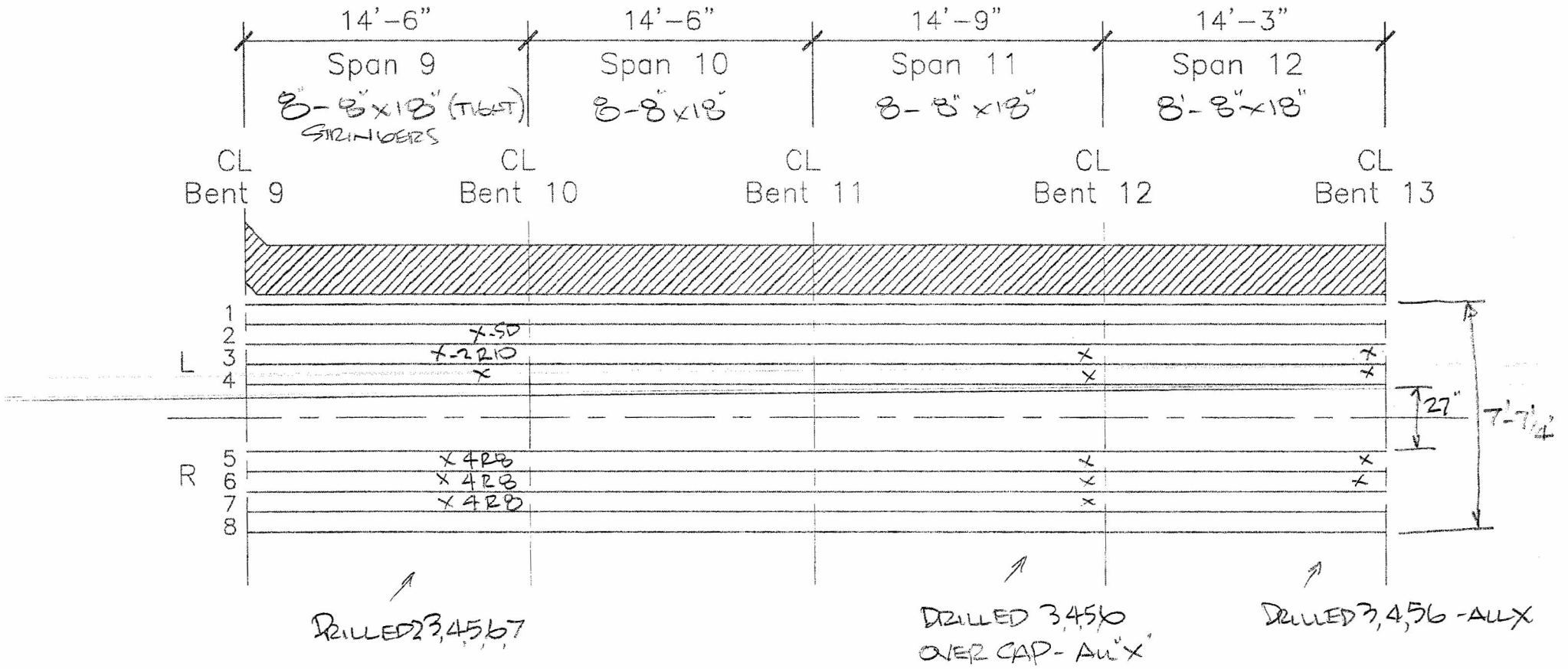
NOTE: TIES ARE GENERALLY DRIER AND SOMEWHAT BETTER CONDITION THAN APPROACH SPAN TIES HOWEVER STILL DECAYED IN TOPS @ L0, L4, L5, L6.

R = ROTTEN DECAY
SD = STARTING DECAY
X = GOOD

Mill City Pedestrian Bridge Stringer Plan

NORTH

INSPECTORS S. McCORNACK
T. LAMORTICELLA
DATE 11-17-2014
AUSLAND GROUP ENGINEERS



FOUND

#2	OK - STARTING DECAY WITHIN
3	2"X - 10" ROTTEN
4	DRILLED OK
5	4"X - 8"+ ROTTEN
6	4"X - 8"+ ROTTEN
7	X-4" - 8"+ ROTTEN

NOTE: FOUND TIES TO BE SOFT AND DECAYING IN "TOPS" TYPICAL.

X = GOOD WOOD
R = DECAYED
SD: STARTING DECAY
W = WET

Mill City Bridge

Steel Truss Component - Measurement Sheet TOTAL

Item no.	Description	Quantity	Thickness	Width	Length	Condition
	Base Plate and Bearing	4	2"	22"	27"	CS 1
	Pin at support	4	3 1/2" ϕ			CS 1
	Bottom Chord Eye Bars IRON					
	Panel L0 - L1 "	4	1 3/8"	5 1/8"		CS 1
	Panel L1-L2 "	4	1 3/8"	5 1/8"		"
	Panel L2-L3 "	3 4	2 - 1 3/8" 2 - 1 1/4"	5 4		"
	Panel L3-L4 "	3 4	2 - 1 3/8 2 - 1 1/4"			"
	Panel L4-L5 "	4				"
	Panel L5-L6	4				"
	Diagonal Eye Bars					
	Mem U1-L2 "	4	1 3/4"	5"		CS 1
	Mem U2-L3 "	4	1"	5 7/8"		"
	Mem U3-L2 "	4	1 7/8" ϕ	w/ UPSET THREADS		"
	Mem L3-U4 "	4	1 1/4"	5"		"
	Mem L4-U5 "	4	1 3/4"	5"		"
	Built-Up Lattice Verticals L1-U1, L5-U5 (STEEL)	4	15"	18 1/2"	26'	CS 1
	Pheonix Verticals L0-U1 6 SEGMENT IRON	2	0.74			"
	Mem L2-U2 4 SEGMENT "	2	0.50			"
	Mem L3-U3 "	2	0.39			"
	Mem L4-U4 "	2	0.50			"
	Top Chord Pheonix Section U1-U5 6 SEGMENT	2				CS 1
	Top Chord Pins U1-U5	10				"
	Top Chord Lateral Braces U1, U2, U3, U4, U5 5					"
	Wind Brace Rods (Top) U1, U2, U3, U4, U5 10		1 1/4" ϕ			"

Mill City Bridge
Steel Truss Component - Measurement Sheet Continued.

	Description	Quantity	Thickness	Width	Length	Condition
	Sway Brace Rods (Bot) L0-L6	12	2 1/4" ϕ			
	Portal Brace (Each End) 3 SIDED RIVETED	2				CS 1
	Creel Brace (Each Corner) 4" x 4" x 3/8" L	4				CS 1
	Top Chord Pins SEE TEST RESULTS	10				CS 1
	Floorbeams SEE DWGS					CS 1
	Bottom Chord Pins L1,L2, L3, L4, L5 SEE REPORT	10				
	Floor Beam Saddles L2, L3, L4 CASTINGS	12				
	Floor Beam "U" Bars L2, L3, L4	12	2 1/4" ϕ			CS 1
	Main Stringers (Exterior) SEE DWG	12				CS 1
	Interior Stringers SEE DWG	12				CS 1
	End Beam Supports (Between Support)	2				

Mill City Bridge
Timber Approach- Component Measurement Sheet

	Description	Quantity	Thickness	Width	Length	Condition
	Bent1					
	Sill	1	6"	12"	12'	DECAY, APPEARS OK CS2
	Bent 2					
	Sill	1	12"	14"	16'	"R" CS4
	Posts	5	12"	14"	6'	#1 IS CUT OFF CS2
	Cap	1	12"	14"	18'	DAMAGE TO BTM CS2
	Bent 3					
	Sill	1	12"	14"	21'	CS2
	Posts	5	12"	14"	12'	POST 4 & 5 "R" CS4
	Cap	1	12"	14"	16'	CS2
	Bracing	2	4"	8"	22'	CS2
	Bent 4					
	Sill	1	12"	14"	24'	"R" - REPLACE CS5
	Posts	5	12"	14"	22'	POST 5 - "R" CS4
	Cap	1	12"	14"	16'	CS2
	Bracing	5	4"	8"	24'	CS2
	Bent 5					
	Sill	1	12"	14"	24'	"R" - REPLACE CS5
	Posts	5	12"	14"	26'	CS2
	Cap	1	12"	14"	16'	CS2
	Bracing	5	4	8	24	CS2
	Bent 6					
	Sill	1	12"	14"	19'	"R" - REPLACE CS5
	Posts	5	12"	14"	14'	#3, #4 CHECKED CS2
	Cap	1	12"	14"	16'	CS2
	Bracing	2	4"	8"	24'	CS2

NOTE: REPLACE ALL LINE BRACING BTS 3-6

ALL 5 | 6" | 8" | 300' | CS5

	Description	Quantity	Thickness	Width	Length	Condition
	Bent 7					
	Sill	1	12"	14"	18'	"R" REPLACE CS5
	Posts	5	12"	14"	10'	#2 CHECKED CS4
	Cap	1	12"	14"	16'	
	Bracing	2	4"	8"	18'	
	Bent 8 - Pier 1					
	Sill	1	6"	12"	12'	"R" REPLACE CS5
	Bent 9 - Pier 2					
	Sill	1	6"	12"	12'	"R" REPLACE CS5
	Bent 10					
	Sill	1	12"	14"	22'	"R" REPLACE CS5
	Posts	5	12"	14"	24'	POSTS 1, 4, 5 "R" CS5
	Cap	1	12"	14"	16'	CS2
	Bracing	5	4"	8"	24'	CS2
	Bent 11					
	Sill	1	12"	14"	22	"R" REPLACE CS5
	Posts	5	12"	14"	18'	#3, #4 CHECKED REPLACE CS4
	Cap	1	12"	14"	16'	CS2
	Bracing	5	4"	8"	20'	HORIZ/MIDWAY "R" CS5
	Bent 12					
	Sill					
	Posts					
	Cap					
	Bracing					

NOTE: REPLACE ALL LINE BRACING BTS 9"-12"

ALL 5 6" 8" 300' CS5

Mill City Bridge

Timber Approach- Component Measurement Sheet

	Description	Quantity	Thickness	Width	Length	Condition
	Bent 13					
	Sill	1	6"	12"	12'	SILL IS "R" CS5
	Line Bracing	ALL	6"	8"	300 LF	"R" @ ENDS CS5
	BACKWALL LAGGING & WINGS	ALL	4"	12"	200 LF	"R" - HOLLOW CS5
	Decking					CS5
	Ties 4x8" 6x8" - 8"x9"		8"	4-8"	9'-0"	SPANS 9,10,11,12 CS4
	Running Plank	NONE	—			CS3
	Hand Rail Ties (BRACES @ 45°)		4"	4"		CS3
	Bull Rail (FELLOW - SUBMERGED	ALL	4"	8"		"R" W/ TERMITES CS5
	External Decking	ALL	2"	6"	9'	CS3
	Seating (Trex Simulated)	ALL	2"	6"	VARIES	CS2
	Rail Posts		4"	4"	4'	CS3
	Railing (TIMBER)	5	2"	6"	1x5	CS3
	METAL Meal Railing LIGHT WT / STEEL				120'	CS2
	Strip Decking - UNDER TOP DECK	1x5	2"	6"	9'	SOFT/MOSSY CS3

PROJECT: MILL CITY BRIDGE BY: SLM

CLIENT: DATE: 11-12-2014

SUBJECT: TIMBER INSPECTION PAGE: 1 of

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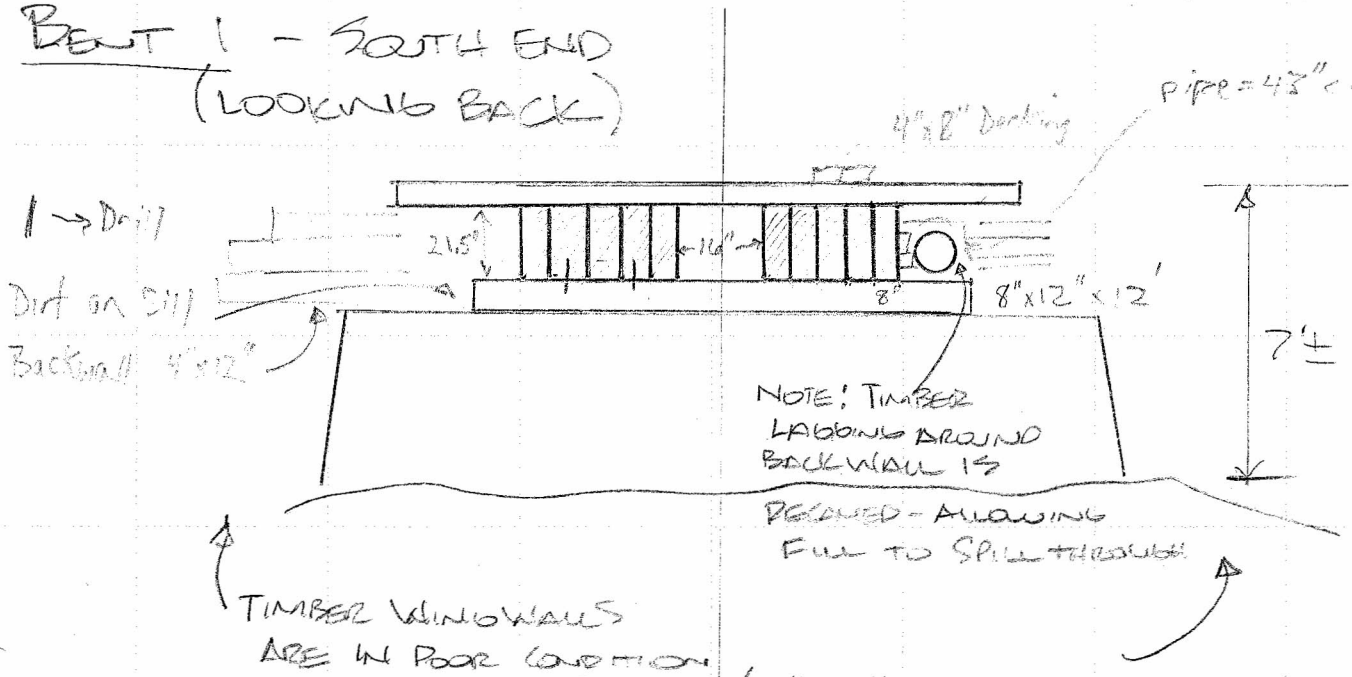
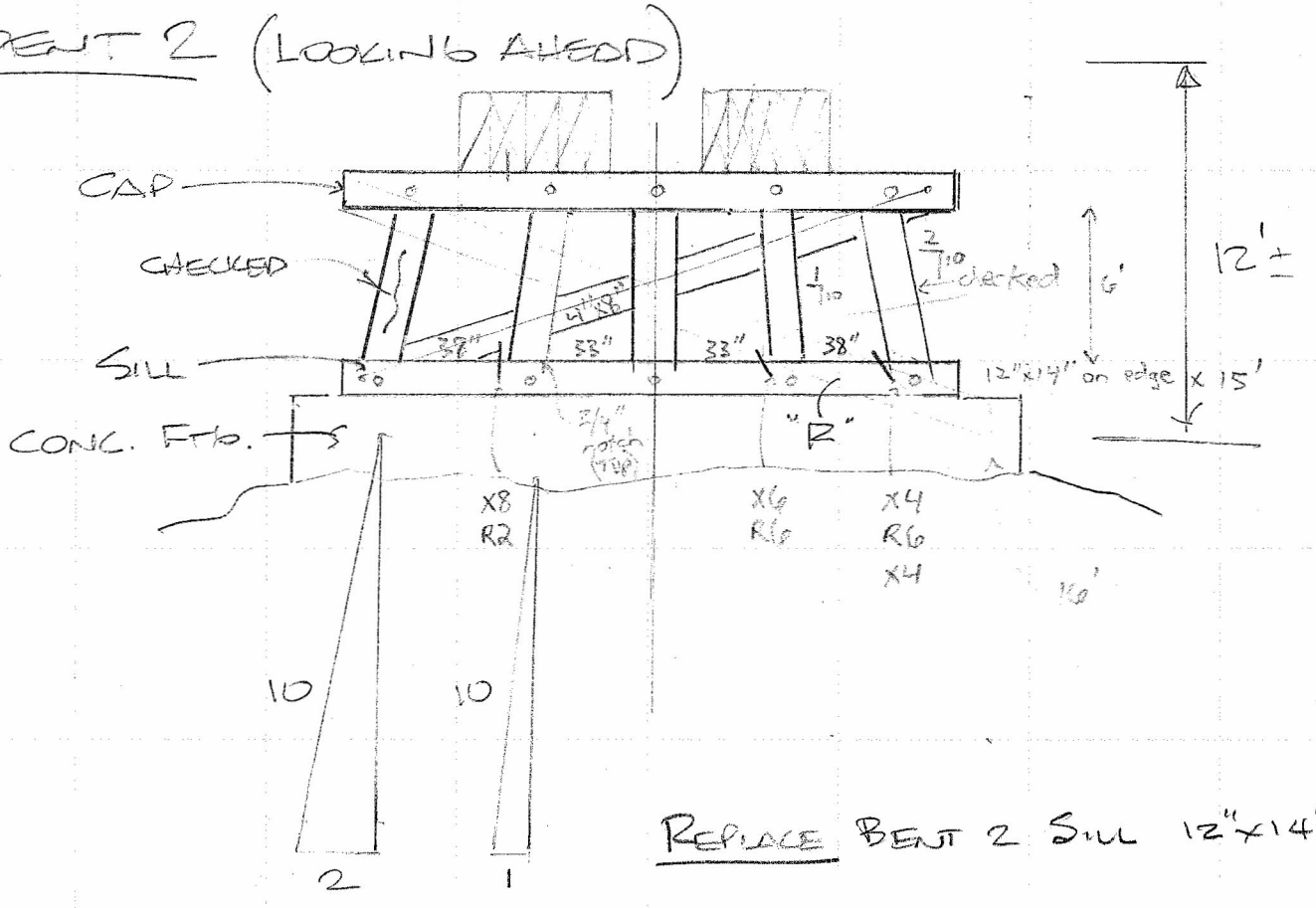
R = ROTTEN

BENT 1 - SOUTH END (LOOKING BACK)



BENT 2 (LOOKING AHEAD)



REPLACE BENT 2 SILL 12"x14"x16'

PROJECT: MILL CITY BRIDGE BY: SLM

CLIENT: DATE: 11-18-2014

SUBJECT: TIMBER INSPECTION PAGE: 2 of

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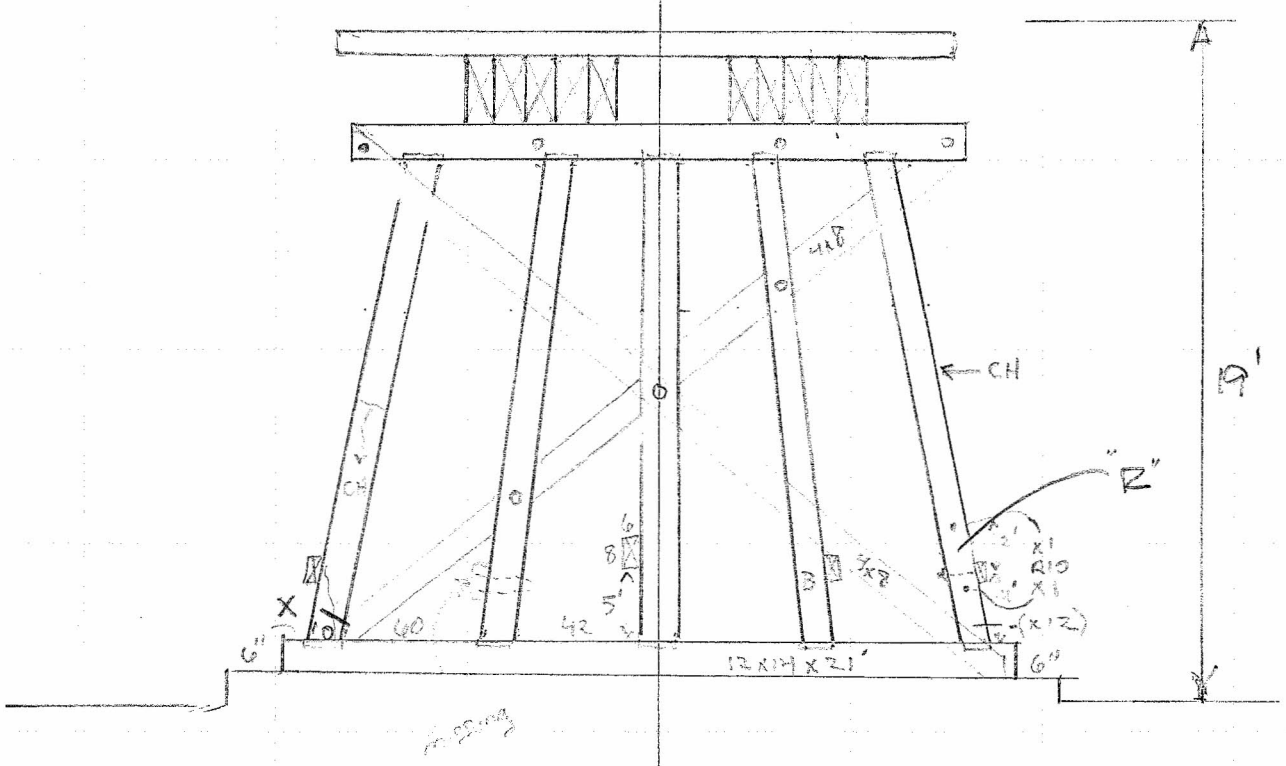
BENT 3

B = BAD
CH = CHECKED
R = ROTTEN



REPLACE POST # A ± #5 | 12"x14"x 18'

REPLACE 6"x8" BRACING.

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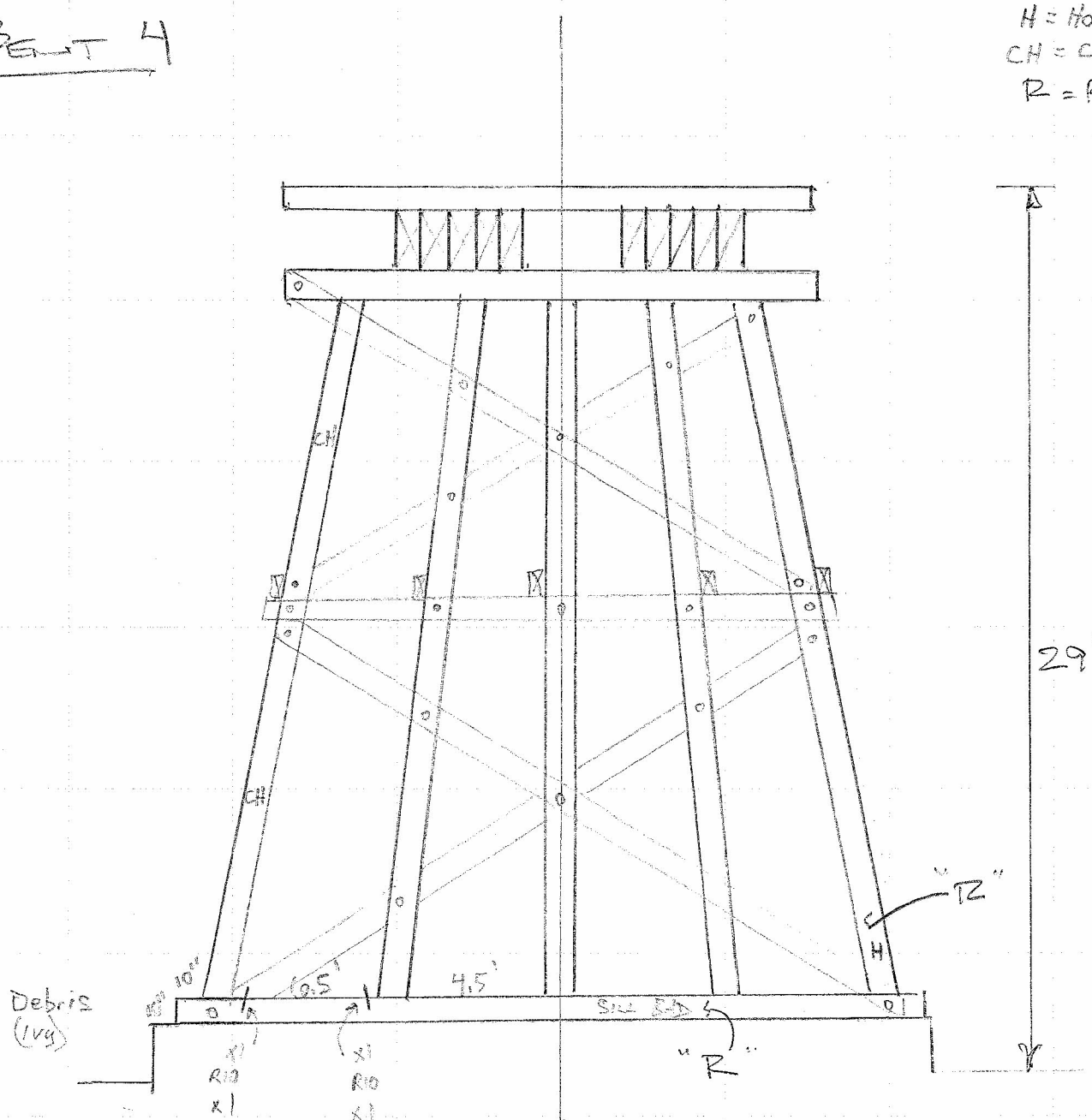
BENT 4

H = Hollow
CH = checked
R = ROTTEN



REPLACE 12" x 14" x 24' LONG SILL

REPLACE ALL 5-6"x8" LINE BRACING

REPLACE 12" x 14" x 24' LONG POST #5

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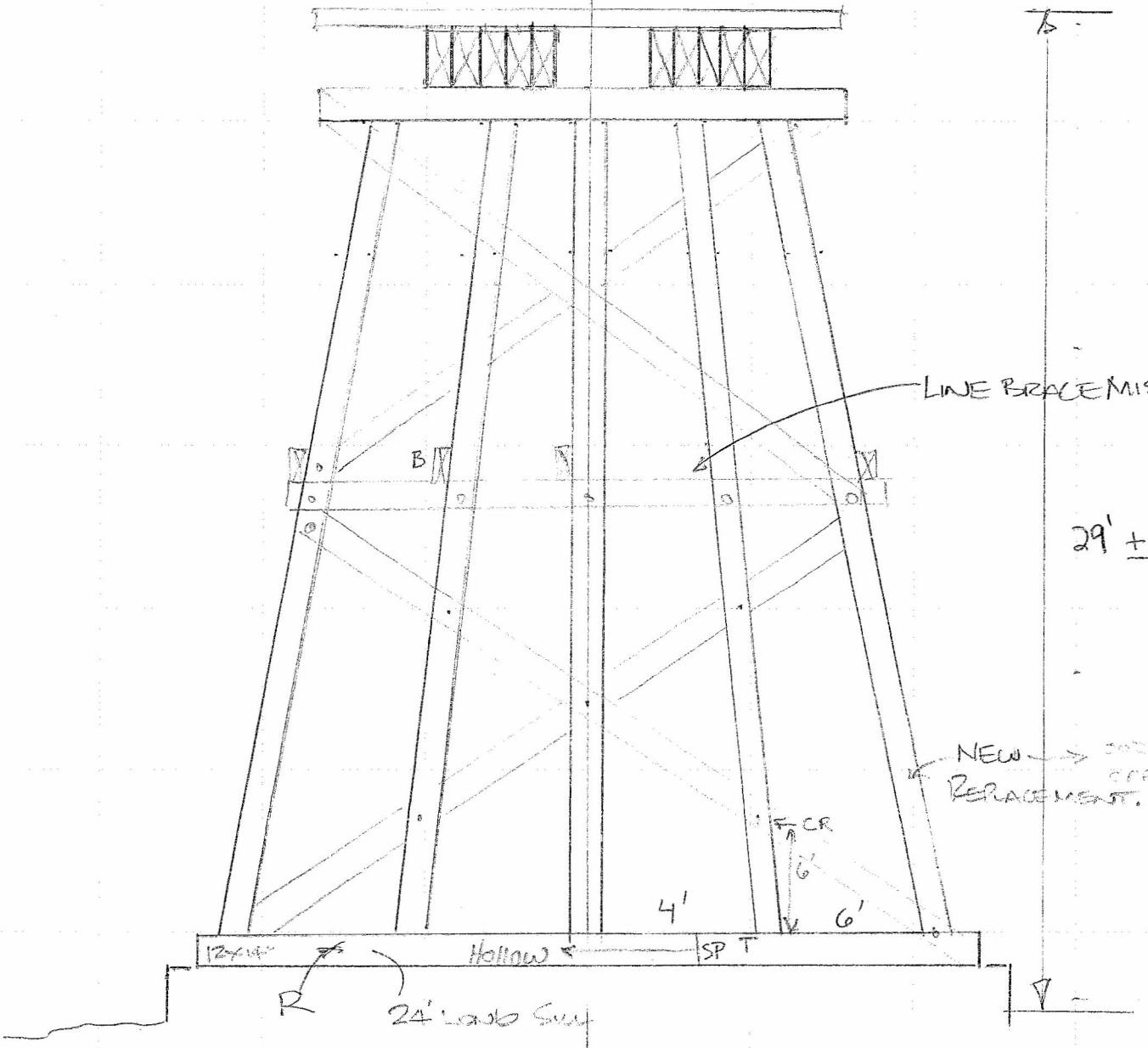
BENT 5

SP = Splice
T = Termites
CR = Crack
B = Bad
R = ROTTEN



REPLACE 12"x14" x 24' LONG SILL
REPLACE ALL 5 6"x8" LINE BRACING.

PROJECT: Mill City Bridge BY: BM

CLIENT: DATE: 11-18-2016

SUBJECT: Timber Inspection PAGE: 3 of

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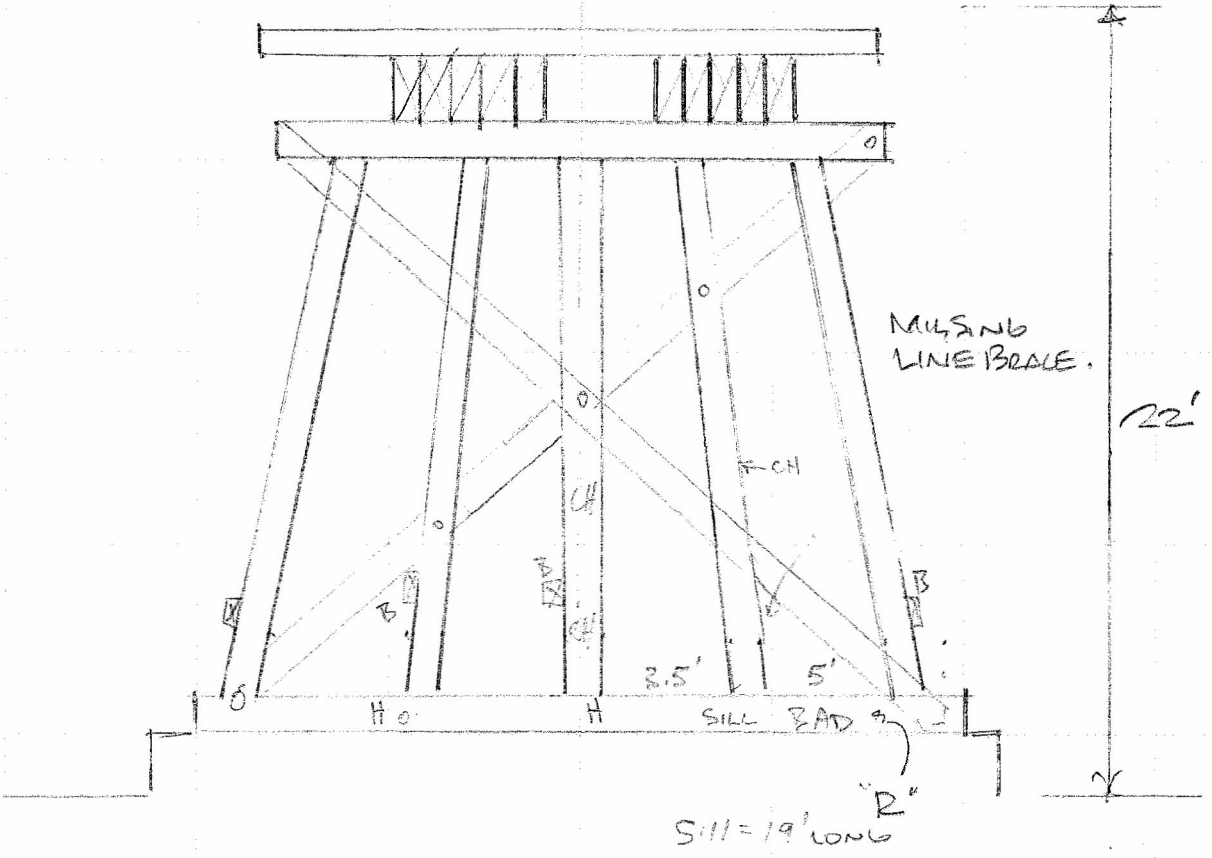
BENT 6

H = Hollow
R = Rotten
CH = Checked
B = Bad



REPLACE 5 - 6" x 8" LINE BRACES

REPLACE 12" x 14" x 20' LONG SILL

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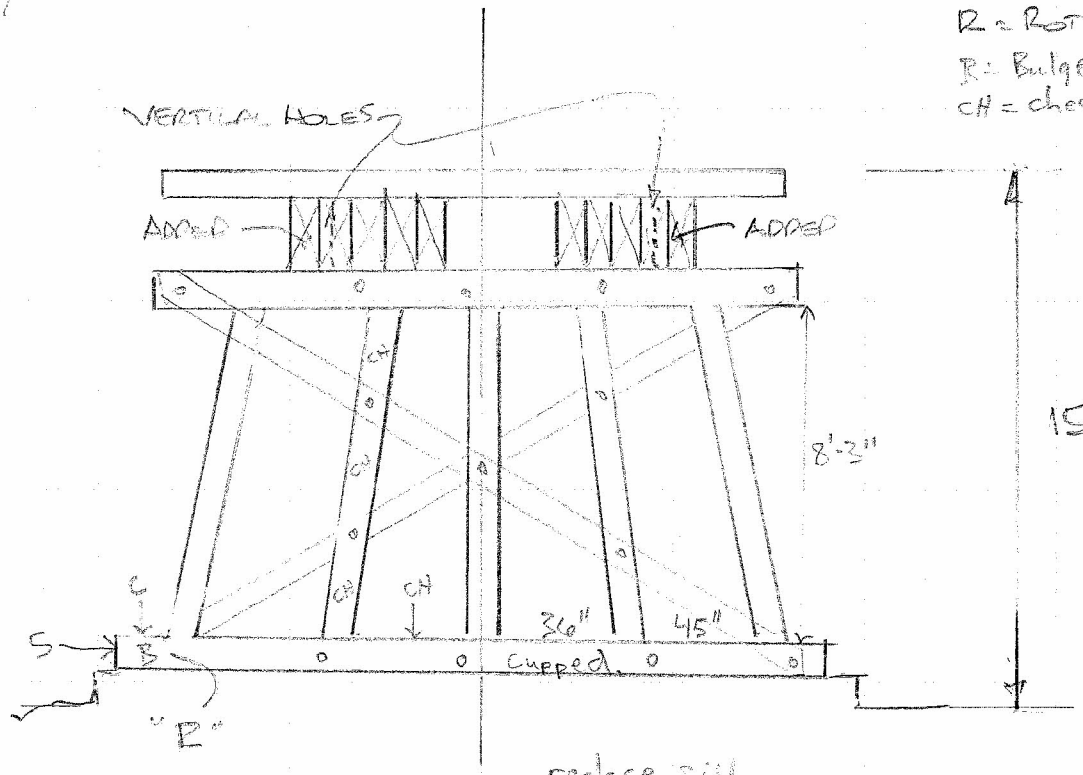
BENT 7

S=Shattered
C=crack
R=Rotten
B=Bulge
CH=checked



replace sill

Note: S1 & S10 (entire bridge) Vertical bolts @ 4' o.c. ±

REPLACE 12" x 14" x 18' LONG SILL

REPLACE POST #2 12" x 14" x 10' LONG

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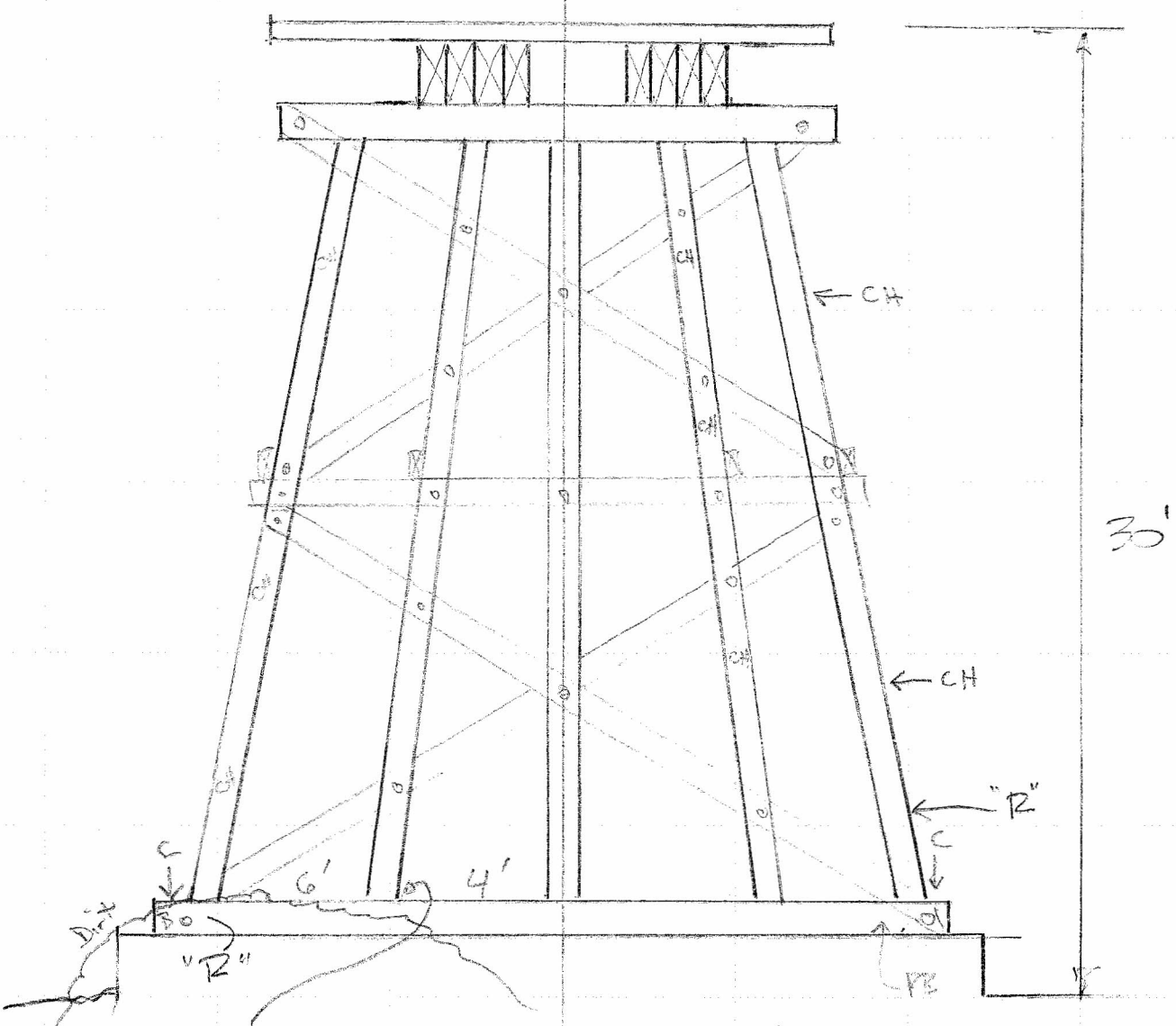
Bent 10

CH = checked.
C = crack
PB = Possibly Bad
"R" = Rotten



NOTE: POSTS ARE WEDGED TIGHT WITH CEDAR SHINGLES UP TO ½" THICK.

Sill = 23'

REPLACE 12" x 14" x 24' LONG SILL

REPLACE POSTS # 1, 4 & 5 (3) 12" x 14" x 24' LONG.

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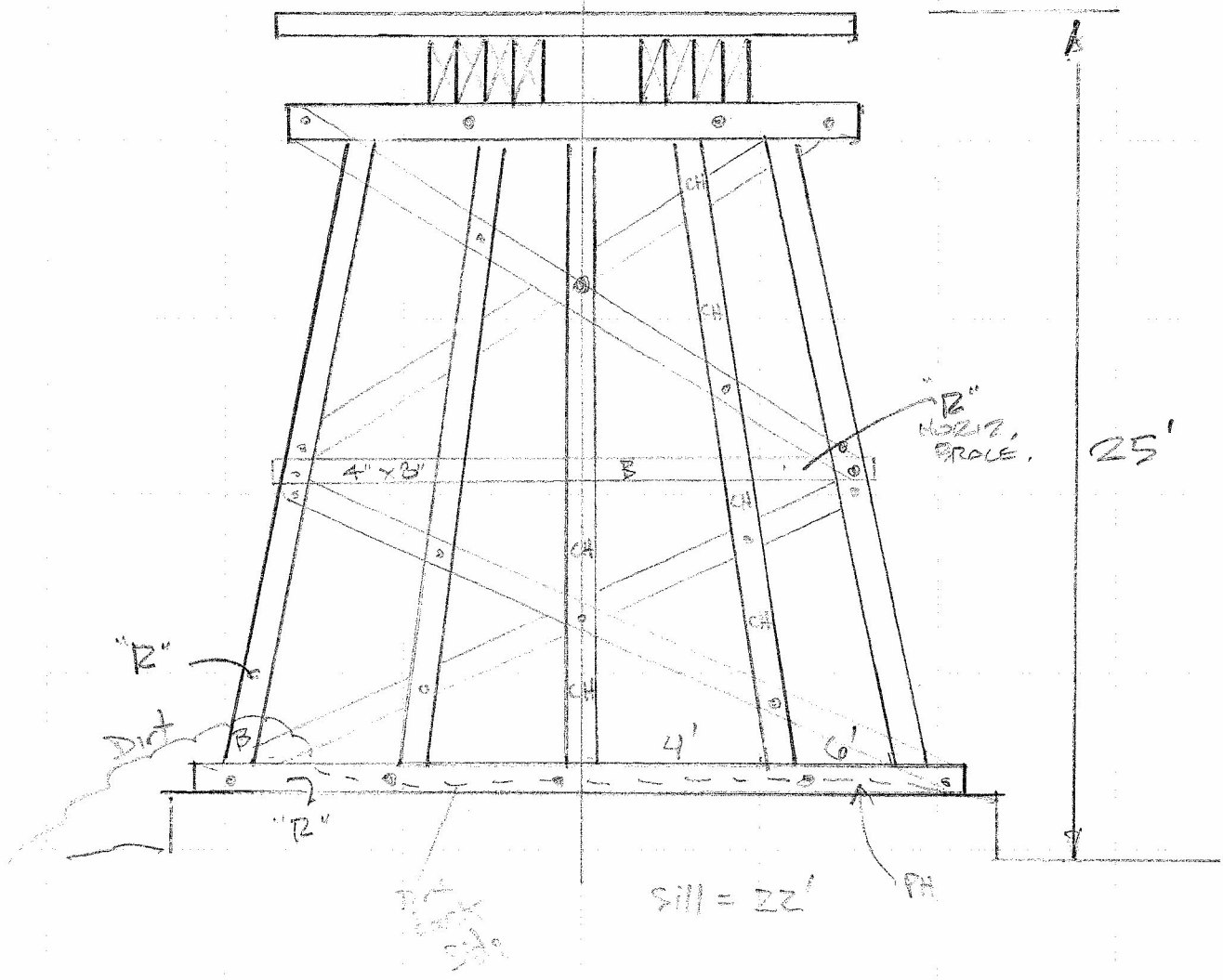
Bent 11

B = Bad
CH = checked
PH = Potentially Hollow
"R" = Rotten



Replace 12" x 14" x 22' long Sill.

Replace 4" x 8" x 20' long Horiz. Brace

Replace Posts 3, 4, 12" x 14" x 20' long x(2)

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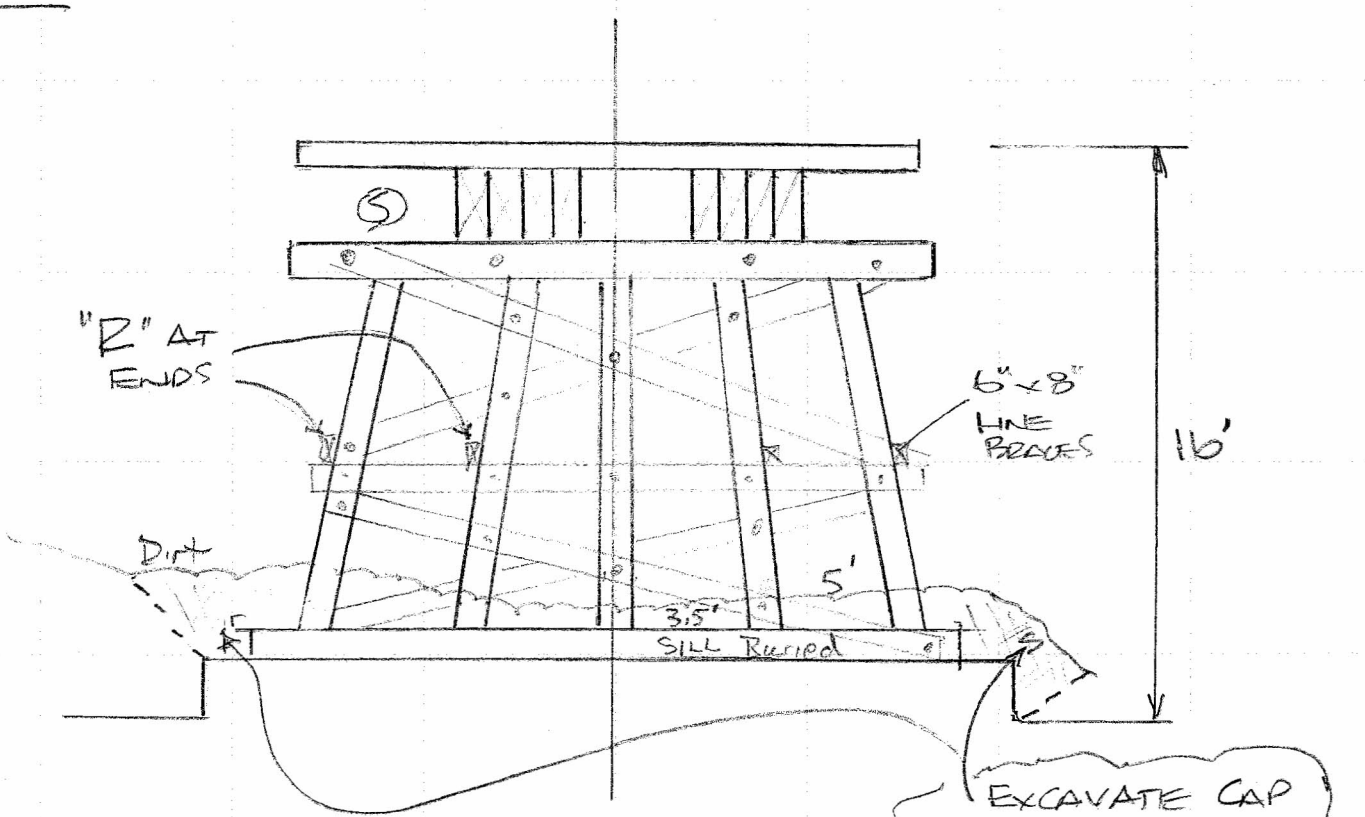
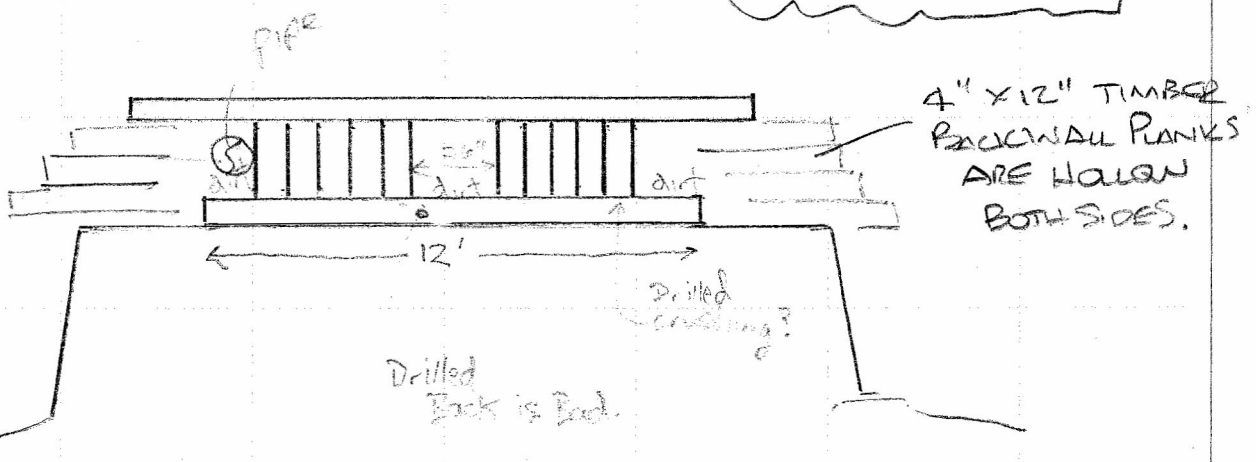
BENT 12



BENT 13



REPLACE LINE BRACING AT 10-12 6"x8"x ___.

REPLACE 6"x12"x12' LONG SILL @ 13