BULLARD
BOLLARDS





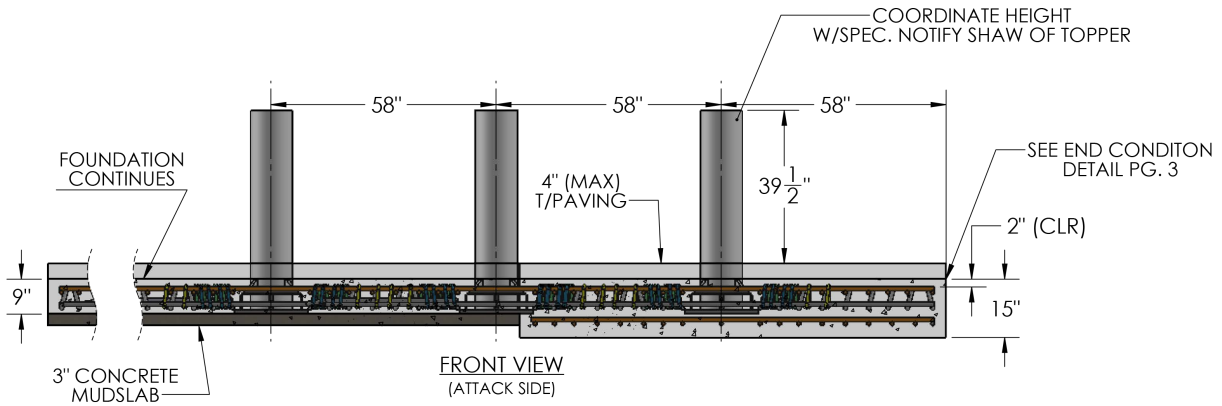
GROOT
(BDS-M50FB-SH)

sales@gordonbullard.com
www.bullardbollards.com
1-877-964-4646

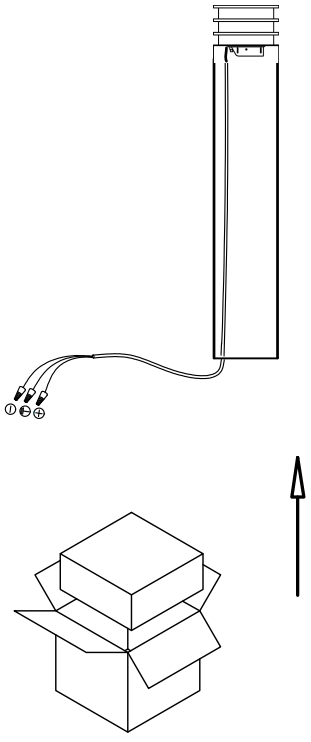
991 South Gull Lake Dr
Richland, MI 49083
USA

1.Mounting of security base in accordance with ASTM CRASH RATED standards

Detailed installation information on page 2 and 3 and 4



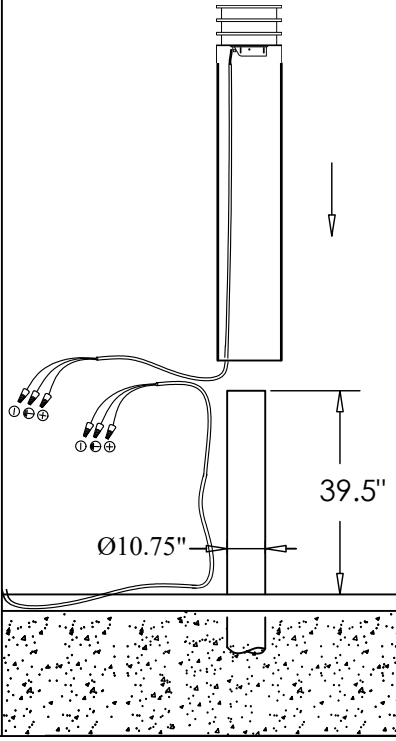
2.Take out the lamps and find the corresponding accessories.



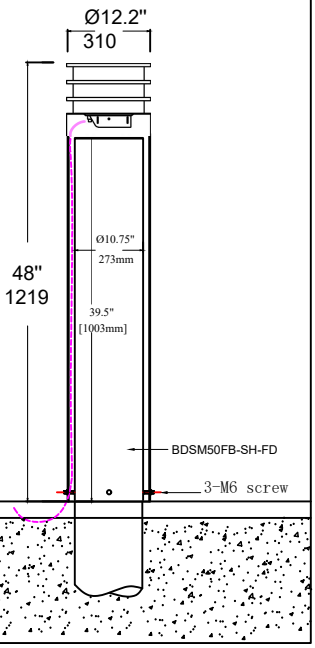
3.Connect the power cord through the three-core waterproof connector

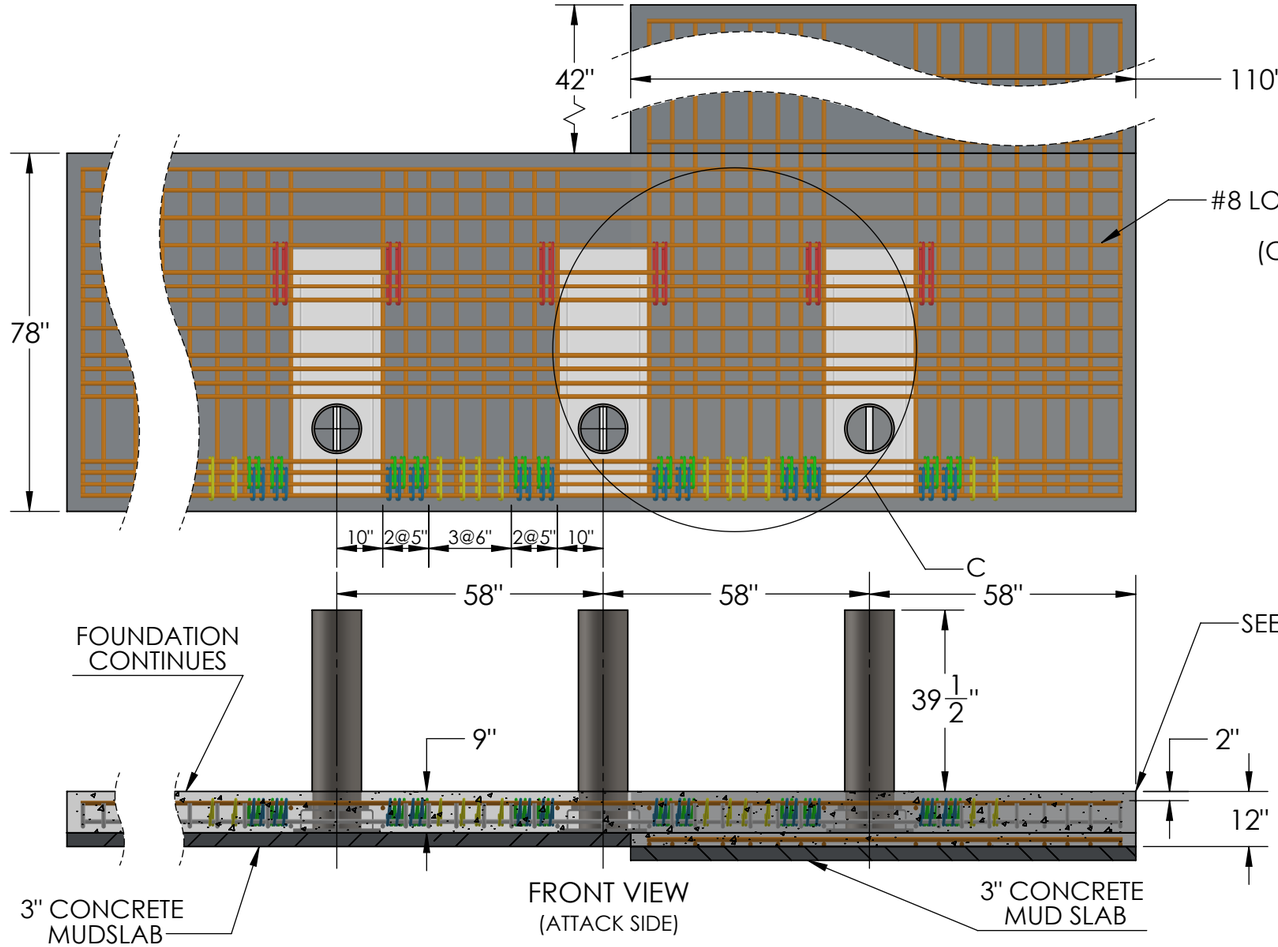
Please note: the cord should be located between the security pipe and the lit cover, it doesn't need to go into the concrete.

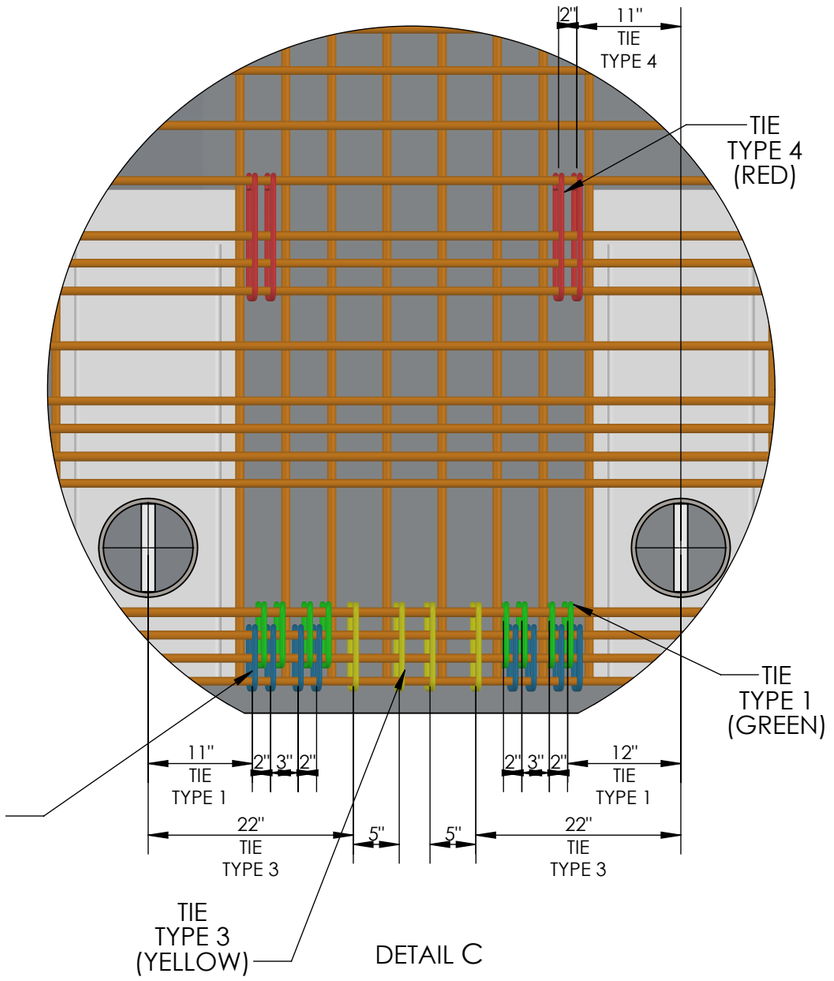
4.Fix the top lit cover with the set of screws



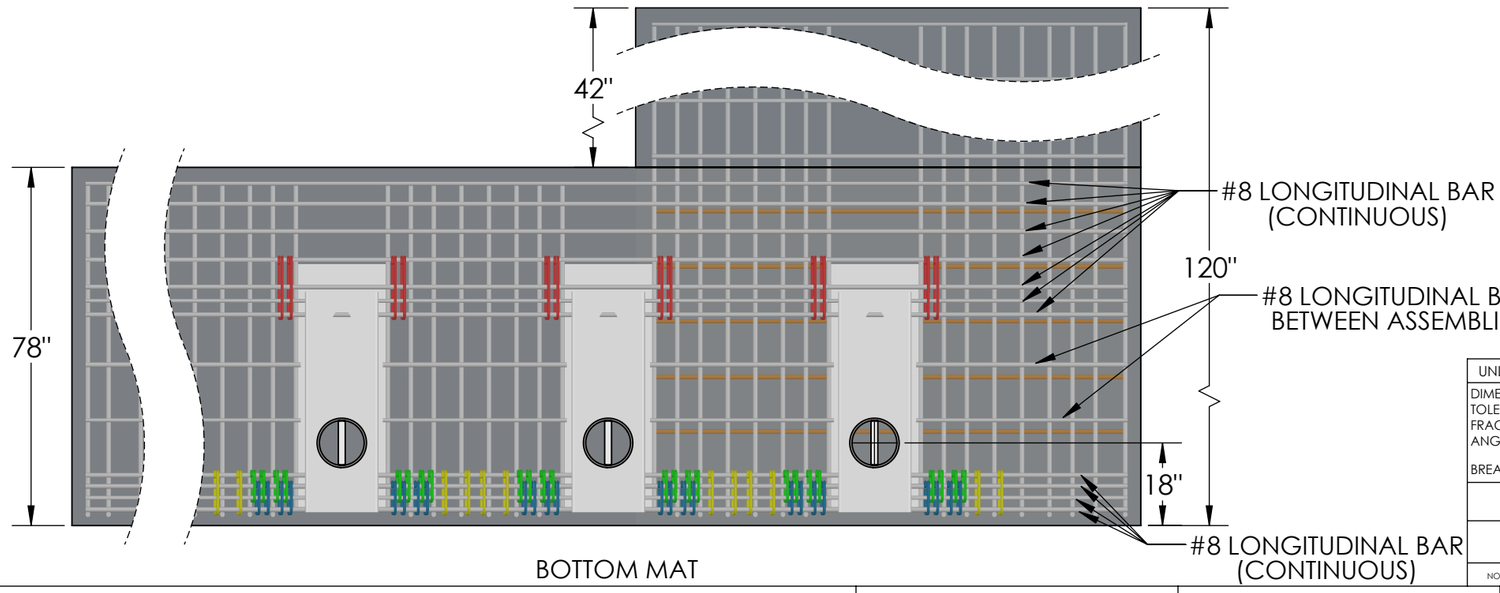
5.Lamp size drawing.







DETAIL C



BOTTOM MAT

1. REFER TO CONCRETE/STEEL SPECIFICATIONS ON PAGE 4

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: -0" / +1/16" ANGULAR: MACH ±1.0° BEND ±2.5°	DRAWN BY	S.J.	2/18/2020
	CHECKED BY	J.HU.	2/18/2020
	ENG APPR.		
BREAK ALL SHARP EDGES	MFG APPR.		
MATERIAL	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF Gordon Bollard and Co ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF Gordon Bollard and Co IS PROHIBITED.		
FINISH MILL			
NO MANUAL REVISIONS/CHANGES ALLOWED			

BULLARD BOLLARDS

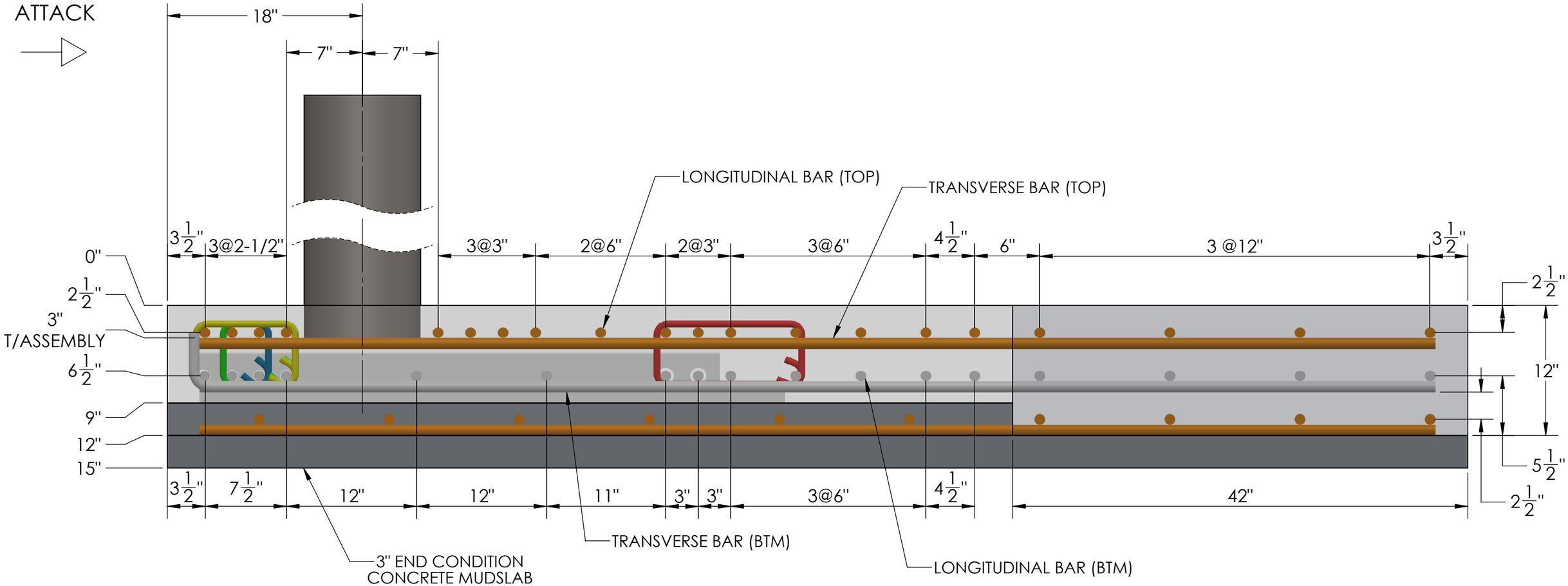
DESCRIPTION:
M50 SHALLOW BOLLARD FOUNDATION

REV. | ITEM NO: BDS-M50FB-SH-FD

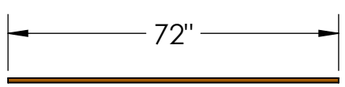
WEIGHT:

SHEET 1 OF 4

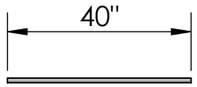
ATTACK



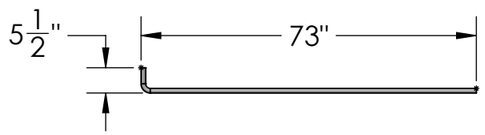
SIDE VIEW



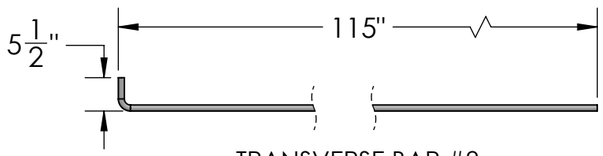
TRANSVERSE BAR #8
(TOP MAT)



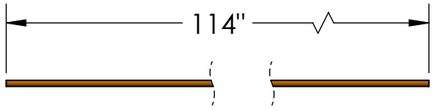
LONGITUDINAL BAR #8
(CENTER MAT BETWEEN ASSEMBLIES)



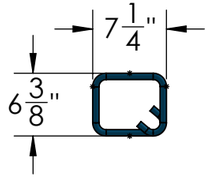
TRANSVERSE BAR #8
(CENTER MAT)



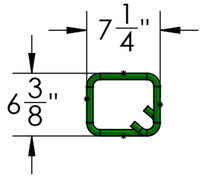
TRANSVERSE BAR #8
(END CONDITION CENTER MAT)



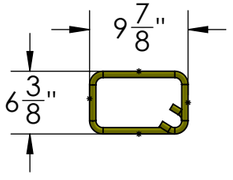
TRANSVERSE BAR #8
(END CONDITION TOP)



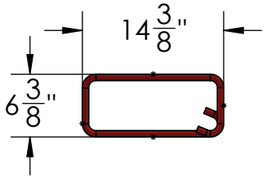
CLOSED TIE TYPE 1
BLUE
#5 REBAR



CLOSED TIE TYPE 1
GREEN
#5 REBAR



CLOSED TIE TYPE 3
YELLOW
#5 REBAR



CLOSED TIE TYPE 4
RED
#5 REBAR

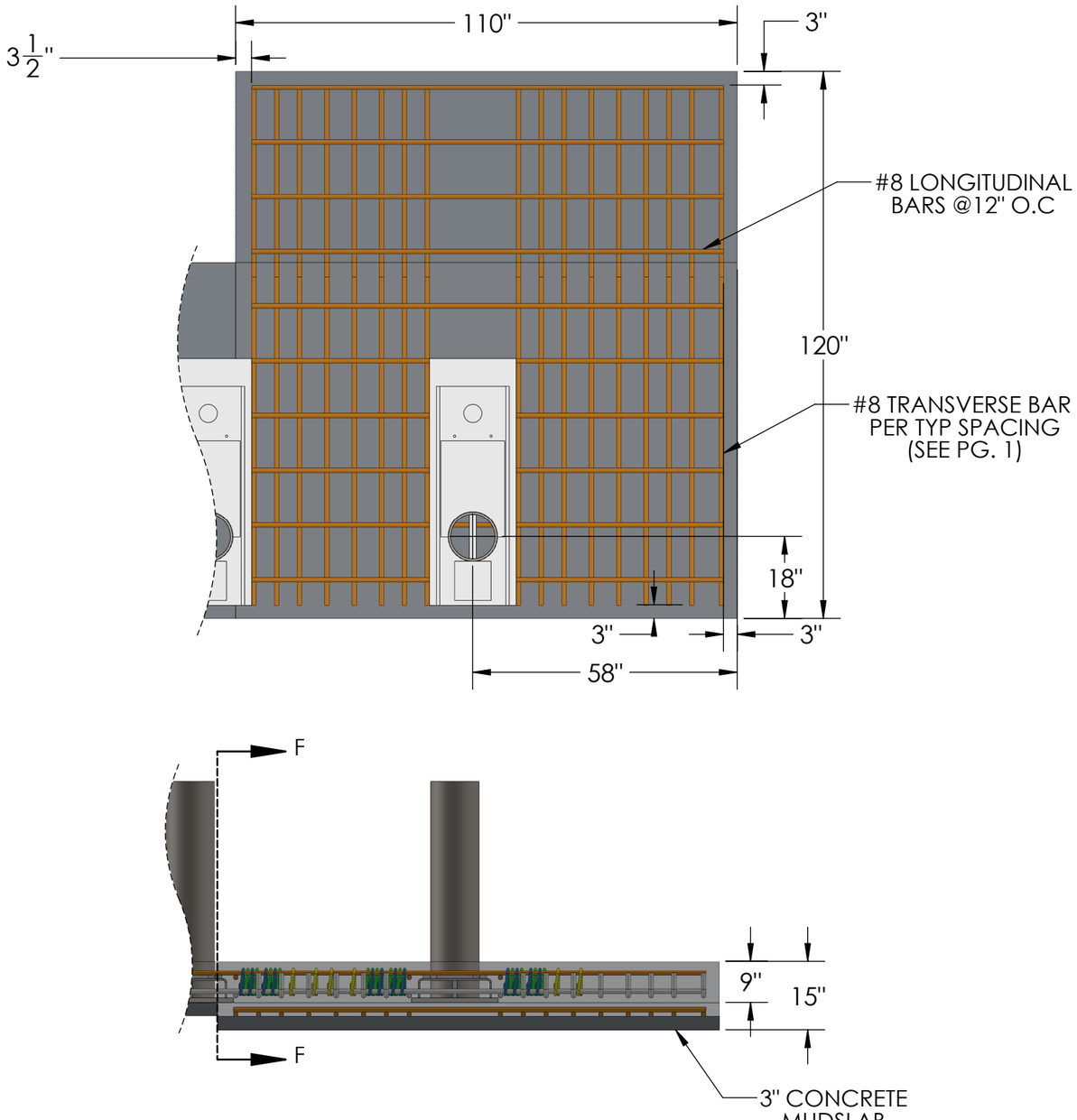
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	CHECKED BY	J.HU.	2/18/2020
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BREAK ALL SHARP EDGES	MFG APPR.		
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FINISH MILL			
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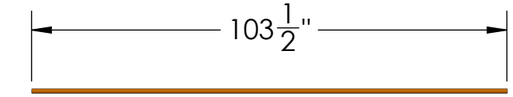
BULLARD BOLLARDS

DESCRIPTION:
M50 SHALLOW BOLLARD FOUNDATION

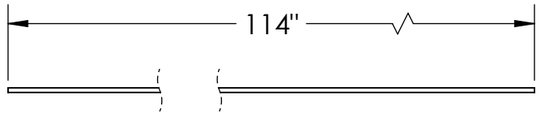
REV. | ITEM NO: BDS-M50FB-SH-FD

WEIGHT:

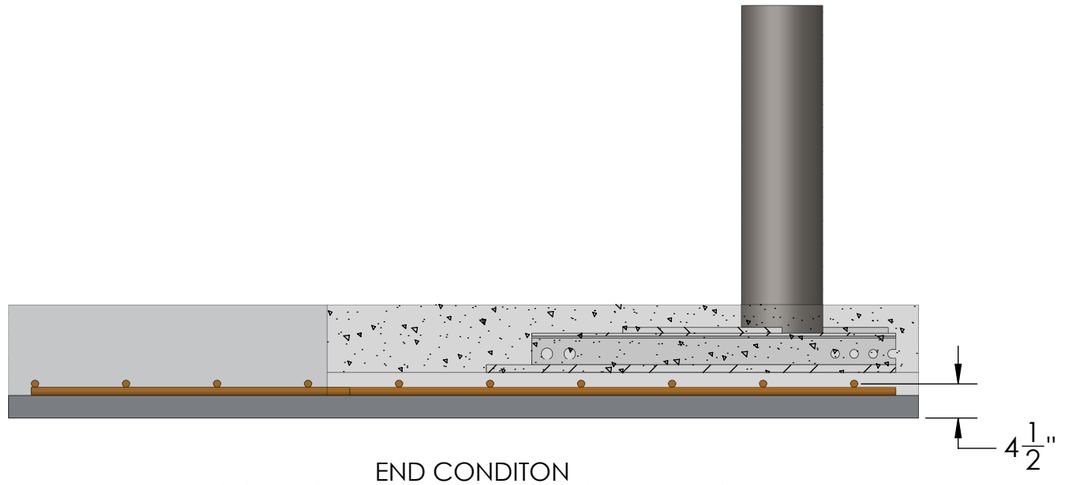




LONGITUDINAL BAR #8
(END CONDITON BOTTOM MAT)



TRANSVERSE BAR #8
(END CONDITON BTM MAT)



END CONDITON
(TOP & CENTER MAT HIDDEN FOR CLARITY)

FUNCTION	WORK BY	DATE	Q.C. BY	DATE
CUT				
FORMING				
FITTING				
WELD				
POLISH				
FINAL				

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL: -0" / +1/16" ANGULAR: MACH ±1.0° BEND ±2.5°	DRAWN BY	S.J.	2/18/2020
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BULLARD BOLLARDS

DESCRIPTION:
M50 SHALLOW BOLLARD FOUNDATION

REV. | ITEM NO:
BDS-M50FB-SH-FD

WEIGHT: | SHEET 3 OF 4

C:\Users\spencer\Documents\SOLIDWORKS PDM\SAP Cust\BDS\Rated\Bollards\Shallow Fixed\BDS-M50FB-SH\DWGS\

1. - GENERAL:
a. ALL NOTES THIS PAGE ARE APPLICABLE TO THE DRAWINGS AND DETAILS PROVIDED FOR FIXED AND REMOVABLE BOLLARDS ONLY.
b. THE CONTRACTOR SHALL USE MATERIALS AND EMPLOY CONSTRUCTION METHODS IN ORDER TO COMPLY WITH THE DESIGN DRAWINGS. CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY SPECIFIC DEVIATIONS AND OBTAIN ENGINEER'S WRITTEN APPROVAL FROM THE SPECIFIC DEVIATION.
c. IT IS THE CONTRACTOR'S SOLE RESPONSIBLITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION
d. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS.

2. - FOUNDATIONS:
a. DESIGN "NET" ALLOWABLE SOLID BEARING PRESSURE OF 3000 POUNDS/SQ. FOOT, AT A DEPTH OF 10IN. BELOW ADJACENT GRADE. ALL FOOTING EXCAVATIONS TO BE VERIFIED BY OTHERS. IT IS THE RESPONSIBLITY OF THE CONTRACTOR TO REPORT ADVERSE CONDITIONS.
b. THE EXCAVATION SHALL BE KEPT DRY AT ALL TIMES. GROUNDWATER SHALL BE REMOVED FROM THE EXCAVATION.
c. CONTRACTOR SHALL REMOVE ALL LOOSE SOLID OR ROCK FROM THE FOOTING EXCAVATION PRIOR TO CONCRETE PLACEMENT.
d. SUBGRADE SHALL BE UNIFORMLY COMPACTED TO AT LEAST 95 PERCENT OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY.

3. - CONCRETE:
a. CONCRETE SHALL CONFORM TO ACI BUILDING CODE 318-14. UNLESS NOTED, CONCRETE SHALL BE NORMAL WEIGHT, 4500 PSI @ 28 DAYS WITH MAX. WATER-CEMENTIOUS MATERIAL RATIO OF 0.45. MAXIMUM SLUMP FOR CONCRETE SHALL BE 5" $\pm$ AT POINT OF PLACEMENT.
b. UNLESS NOTED, CEMENT SHALL CONFORM TO ASTM C150 TYPE II, AGGREGATES SHALL BE NORMAL WEIGHT CONFORMING TO ASTM C33.
c. CONCRETE SHALL BE AIR-ENTRAINED IN ACCORDANCE WITH ACI 318-14, "TOTAL AIR CONTENT FOR THE CONCRETE EXPOSED TO CYCLES OF FREEZING & THAWING."
d. HOT WEATHER CONCRETE PLACEMENT SHALL COMPLY WITH ACI 305R. COLD WEATHER CONCRETE PLACEMENT SHALL COMPLY WITH ACI 306R-16.
e. CONCRETE CURING SHALL COMPLY WITH ACI 308R.
f. CONCRETE SHALL BE CONSOLIDATED AND SHALL COMPLY WITH ACI 309R.
g. CONTROL JOINTS SHALL BE SCORED OR SAW-CUT JOINTS (1" DEEP FILLED WITH SEALANT) TO MATCH EXISTING CONDITION AND BE PLACED AT A MAXIMUM SPACING OF 12 FEET ON-CENTER. CONCRETE SURFACES THAT ARE EXPOSED SHALL COMPLY WITH THE BUILDING CODE REQUIREMENTS.
h. FOR SHALLOW DEPTH FOUNDATIONS (10 IN. DEPTH OR LESS) OR IN A CORROSIVE ENVIRONMENT: CONCRETE SHALL INCLUDE A CORROSION INHIBITOR, COMPLYING WITH ASTM C494 TYPE C, AT A DOSAGE OF 1.5 TIMES THE MINIMUM RECOMMENDATION BY THE MANUFACTURER.
i. FOR SHALLOW DEPTH FOUNDATIONS (10 IN. DEPTH OR LESS): CONCRETE SHALL INCLUDE A "FORTA FERRO" SYNTHETIC FIBERS MANUFACTUERD BY FORTA CORP (OR EQUIVALENT). FIBERS SHALL COMPLY WITH ASTM C 1116 AT A DOSAGE OF 3 POUNDS PER CUBIC YARD PLACED PER MANUFACTURERS RECOMMENDATIONS.

4. - REINFORCING STEEL:
a. REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60. PROVIDE A MINIMUM BAR LAP OF 60 BAR DIAMETERS. STAGGER LAPS WHERE POSSIBLE.
b. REINFORCING THAT IS WELDED SHALL BE WELDABLE TYPE ASTM A-706.

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FINISH MILL			
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BULLARD BOLLARDS

DESCRIPTION:
GENERAL INSTALL NOTES

REV. | ITEM NO:

WEIGHT:

SHEET 4 OF 4