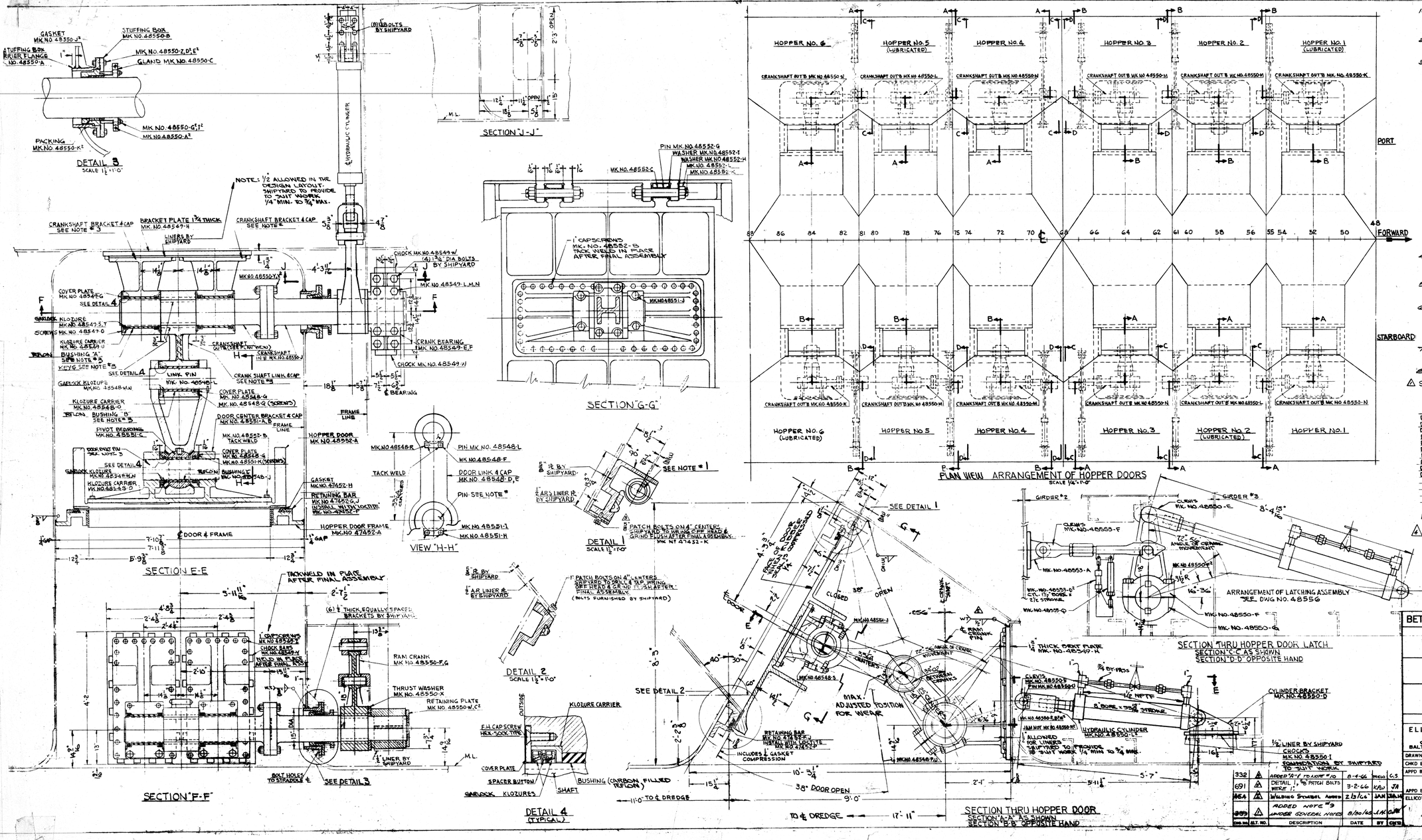

GENERAL NOTES:

1. PIN HOLE SLOT OF HINGE PAD BUSHING MK. NO. 47452-I SHALL BE POSITIONED AS SHOWN IN SECTION THRU HOPPER DOOR TO INSURE UNIFORM BEARING ON RUBBER SEALING GASKETS MK. NO. 47452-H
2. WELD CHOCKS MK. NO. 48549-W, MK. NO. 48549-Y AND MK. NO. 48550-I IN PLACE AFTER ALL ITEMS ARE COMPLETELY ASSEMBLED AND ADJUSTED.
3. A PRESSURE LUBRICATION SYSTEM IS PROVIDED FOR THE TEFLON BEARING BUSHINGS OF THE OPERATING MECHANISM OF HOPPER DOORS NO. 1 & NO. 2 PORT & NO. 2 & NO. 3 STBD. SEE DWG. "THE FOLLOWING PARTS (NOT COMMON TO EACH HOPPER) ARE ASSEMBLED AS INDICATED BELOW AND AS SHOWN ON DWG. AT BEGINNING
   a. HOPPERS NO. 6 STBD. & NO. 5 PORT — CRANK SHAFT OUTBOARD SECTION MK. NO. 48550-L, KEY MK. NO. 48550-K (WITH GREASE HOLE), CRANKSHAFT BRACKET MK. NO. 48549-A, C, CRANKSHAFT LINK MK. NO. 48548-A, DOOR BRACKET PIN MK. NO. 48551-E, TEFLON BUSHING "A" MK. NO. 48549-I, TEFLON BUSHING "B" MK. NO. 48548-H.
   b. HOPPERS NO. 6 STBD. & NO. 1 PORT — CRANK SHAFT OUTBOARD SECTION MK. NO. 48550-K, KEY MK. NO. 48550-K (WITH GREASE HOLE), CRANKSHAFT BRACKET MK. NO. 48549-A, C, CRANKSHAFT LINK MK. NO. 48548-A, DOOR BRACKET PIN MK. NO. 48551-E, TEFLON BUSHING "A" MK. NO. 48549-I, TEFLON BUSHING "B" MK. NO. 48548-H.
   c. HOPPERS NO. 1 & NO. 3 STBD., NO. 4 & NO. 6 PORT — CRANK SHAFT OUTBOARD SECTION MK. NO. 48550-M, CRANKSHAFT BRACKET MK. NO. 48549-B, D, CRANKSHAFT LINK MK. NO. 48548-B, DOOR BRACKET PIN MK. NO. 48551-F, TEFLON BUSHING "A" MK. NO. 48549-J, TEFLON BUSHING "B" MK. NO. 48548-J.
   d. HOPPERS NO. 4 & NO. 5 STBD., NO. 2 & NO. 3 PORT — CRANK SHAFT OUTBOARD SECTION MK. NO. 48550-M, CRANKSHAFT BRACKET MK. NO. 48549-B, D, CRANKSHAFT LINK MK. NO. 48548-B, DOOR BRACKET PIN MK. NO. 48551-F, TEFLON BUSHING "A" MK. NO. 48549-J, TEFLON BUSHING "B" MK. NO. 48548-J.
4. FOR THE NORMAL CLOSED POSITION OF THE HOPPER DOOR, THE CRANK SHAFT LINK SHALL BE AT AN ANGLE OF 18° FORMED BETWEEN A LINE JOINING THE DOOR PIN AND THE CRANK SHAFT AND THE CENTER LINE OF THE CRANK SHAFT LINK.
5. ADJUSTMENT HAS BEEN PROVIDED TO ALLOW FOR 5° ADDITIONAL CLOSING ROTATION OF THE CRANK SHAFT TO COMPENSATE FOR WEAR IN THE LINK PINS AND BEARING BUSHINGS.
6. THE LATCH FOR HOLDING THE HOPPER DOOR IN THE CLOSED POSITION IS ARRANGED TO BE HYDRAULICALLY OPENED AND SPRING LOADED TO CLOSE. BOTH THE LATCH AND HOPPER DOOR HYDRAULIC CYLINDER MOUNTS ARE PROVIDED TO ALLOW FOR ADJUSTING THEIR LENGTHS TO COMPENSATE FOR WEAR.
7. ALL LINERS FURNISHED BY SHIPYARD SHALL BE ¼" MIN. TO ½" MAX. THICK INSTALLED, AFTER FINAL ADJUSTING.
8. SEE DWG. NO. 48555 FOR ERECTION PROCEDURE.
9. △ ALL BOLTING, BOTH OUTBOARD & INBOARD, SHALL BE LOCKED IN PLACE BY TACK WELDING, AFTER FINAL ASSEMBLY IS COMPLETED.

REFERENCE DRAWINGS

DWG. NO. 48554 - LUBRICATION SYSTEM FOR HOPPER DOOR LINKAGE
DWG. NO. 48555 - ERECTION PROCEDURE FOR HOPPER DOORS
DWG. NO. 48556 - ARRANGEMENT OF LATCH ASSEMBLY
DWG. NO. 47452 - HOPPER DOOR FRAMES
DWG. NO. 48548 - HOPPER DOOR OPERATING DETAILS - SHEET NO. 1
DWG. NO. 48549 - HOPPER DOOR OPERATING DETAILS - SHEET NO. 2
DWG. NO. 48550 - HOPPER DOOR OPERATING DETAILS - SHEET NO. 3
DWG. NO. 48551 - HOPPER DOOR OPERATING DETAILS - SHEET NO. 4
DWG. NO. 48552 - HOPPER DOORS
DWG. NO. 48553 - LATCHING DEVICES FOR RAM CRANK

10. △ HOPPER DOOR #2 STBD SIDE FURNISHED WITH MICARTA BUSHINGS, IN PLACE OF TEFLON #"B" & "C" BUSHINGS. MICARTA BUSHINGS SUPPLIED BY BETHLEHEM STEEL ON AN EXPERIMENTAL BASIS.

APPRVD. - A. B. S. 9-17-66
APPRVD. - BETH. STEEL CORP. 9-19-66
APPRVD. - U. S. C. G. 9-14-66

BETH. HULL No	JOB NO.	APPROVALS BY	SUBMIT DATE	APPD DATE
4608		U. S. ARMY ENGRS		
		A.B.S.		9/17/66
		U.S.C.G.		9/14/66
		J.S.P.H.S.		NOT REQ'D

BETHLEHEM STEEL CORPORATION
SHIPBUILDING DIVISION
SPARROWS POINT, MD. 21219

U. S. ARMY ENGINEER DISTRICT, PHILADELPHIA
CORPS OF ENGINEERS
MARINE DESIGN DIVISION
PHILADELPHIA, PA.

DESIGN AGENT: ELLICOTT MACHINE CORPORATION, BALTIMORE, MARYLAND, U.S.A.

HULL No 333
SEAGOING HOPPER & BOOM TYPE DREDGE
"MCFARLAND"

DRAWN BY E. M. Kurtz
CHKD BY E. M. [illegible]
APPD BY C.P.K. 9/2/66
BETH. STEEL CORP.
APPD BY 9-9-1105

ARR'G'T OF HOPPER DOOR AND OPERATING MECHANISM

ELLICOTT DWG. NO. 48547

SCALE 1"=1'-0" AND AS NOTED

BETH. DWG. NO. ROLL 90/4

CHG. NO.	ALT. NO.	DESCRIPTION	DATE	BY	CHK'D
332	△	ADDED "D-D" TO NOTE #10	8-4-66	MCG	G.S.
691	△	DETAIL 1, & PATCH BOLTS WERE	3-2-66	KRJ	JA
464	△	WELDING SYMBOL ADDED	2/3/66	JAK	JAK
389	△	ADDED NOTE #9 UNDER GENERAL NOTES	8/30/65	JAK	JAK