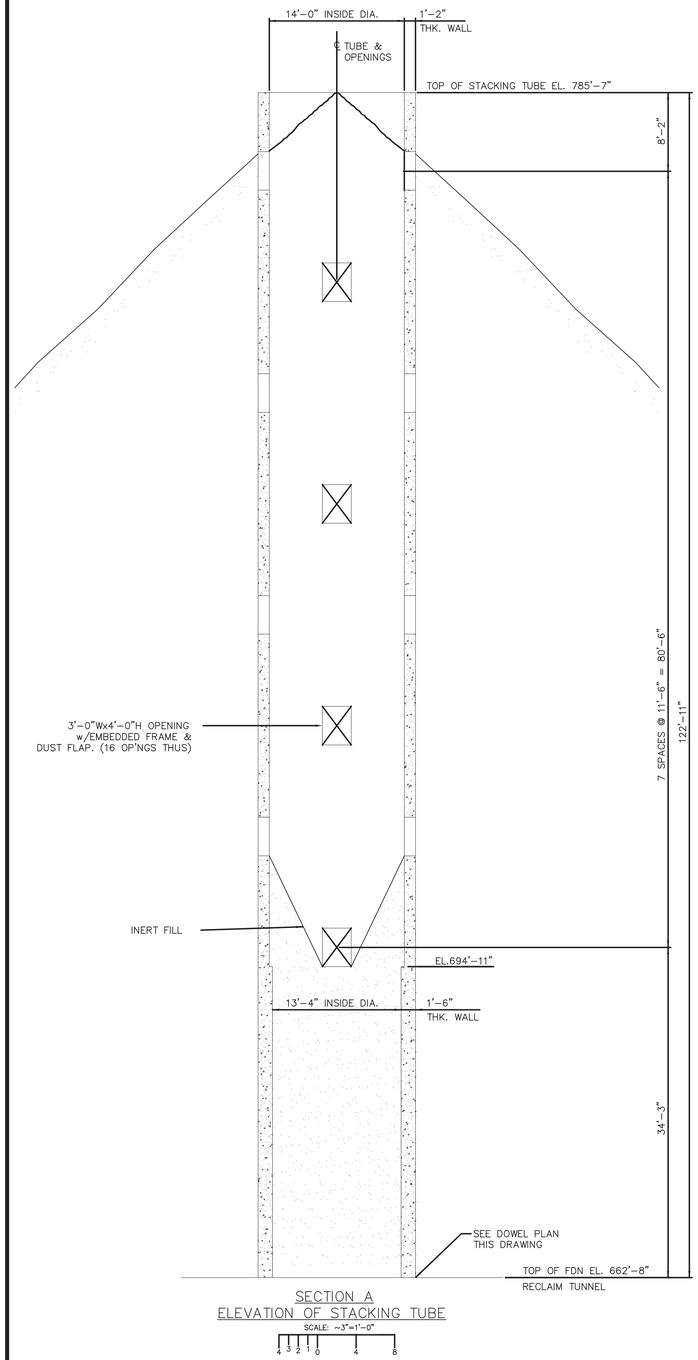
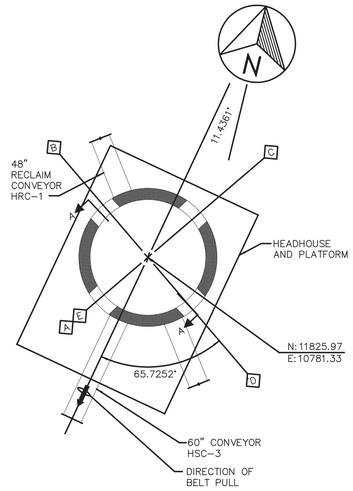



SECTION A
ELEVATION OF STACKING TUBE

SCALE: ~3"=1'-0"

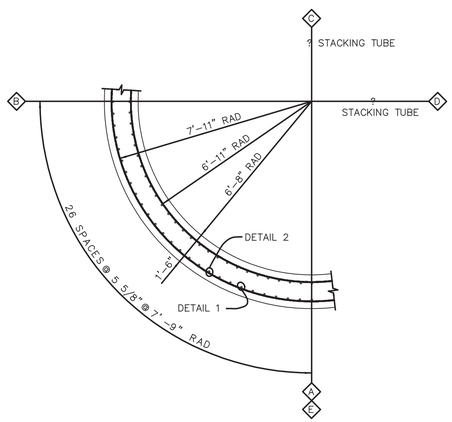
4 3 2 1 0 4 8



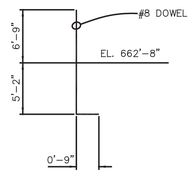

PLAN VIEW

| LOAD COMPONENT | p (kips) | H~sX (kips) | M~sy (k-ft) | H~sy (kips) | M~sx (k-ft) |
|---|---|---|---|---|---|
| DEAD LOAD OF CONCRETE TUBE WALL | 1026 | – | – | – | – |
| DEAD LOAD OF TRUSS & PLATFORM @ T/TUBE | 70 | – | – | – | – |
| LIVE LOAD OF TRUSS & PLATFORM @ T/TUBE | 81.2 | – | – | – | – |
| BELT PULL WITH IMPACT @ T/TUBE | – | 50.7 | 6550 | 48.6 | 6278 |
| EXTERIOR COAL PILE: NOTE: H&M MAY ACT IN ANY DIRECTION | | | | | |
| 1. FULL HEIGHT CONCENTRIC COAL PILE | 1677 | – | – | – | – |
| 2. ECCENTRIC COAL PILE DRAWOFF COEFF. OF COAL FRICTION (SEE NOTE 5) | 511 | ±225.7 | ±6947 | ±225.7 | ±6947 |
| COAL INSIDE TUBE (FULL HEIGHT) | 786 | – | – | – | – |
| WIND PARALLEL TO RECLAIM TUNNEL: | | | | | |
| 1. WIND ON CONV. TRUSS @ T/TUBE | – | ±33.3 | ±4396 | ±31.9 | ±4234 |
| 2. WIND ON TUBE w/NO EXTERIOR COAL PILE | – | ±50.3 | ±3093 | ±50.3 | ±3093 |
| WIND PERPENDICULAR TO RECLAIM TUNNEL | | | | | |
| 1. WIND ON CONV. TRUSS @ T/TUBE | – | ±3.9 | ±518 | ±3.8 | ±498 |
| 2. WIND ON TUBE w/NO EXTERIOR COAL PILE | – | ±50.3 | ±3093 | ±50.3 | ±3093 |
| SEISMIC NOTE: H&M MAY ACT IN ANY DIRECTION | | | | | |
| 1. SEISMIC ON CONV. TRUSS @ T/TUBE | – | ±5.6 | ±753 | ±5.6 | ±753 |
| 2. SEISMIC ON STOCKING TUBE | – | ±75 | ±4332 | ±96 | ±4332 |
| 3. SEISMIC ON INERT MATERIAL IN STACKING TUBE | – | ±39.3 | ±634 | ±39.3 | ±634 |

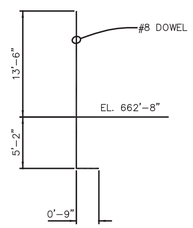
* A UNIFORM PRESSURE OF 4.73 KSF INSIDE THE 13'-4" FT. DIAMETER STACKING TUBE ACTS SIMULTANEOUSLY DOWNWARD ON THE TUNNEL ROOF WITH THE 786 KIP VERTICAL COAL DRAG LOAD ON THE TUBE. THIS UNIFORM PRESSURE INCLUDES INERT MATERIAL AND COAL.



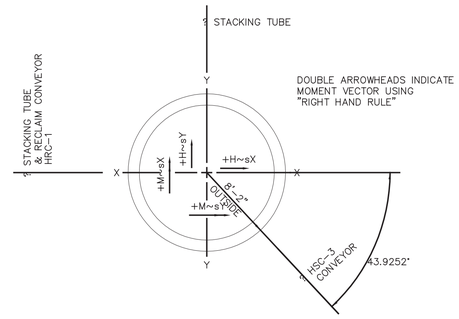

DOWEL PLAN FOR STACKING TUBE
ALTERNATE PLACEMENT OF DOWELS
N.T.S.



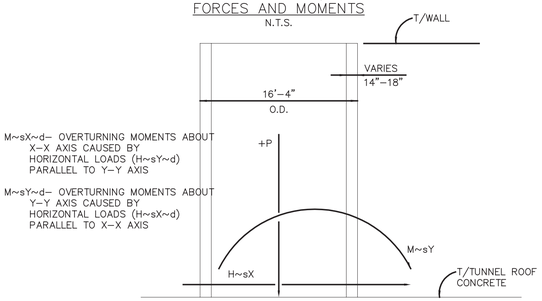

DETAIL 1




DETAIL 2




PLAN OF STACKING TUBE w/DIRECTION OF FORCES AND MOMENTS
N.T.S.




ELEVATION OF STACKING TUBE
N.T.S.

## GENERAL NOTES

DESIGN CRITERIA FOR STACKING TUBE

1. THE STACKING TUBE STRUCTURE IS DESIGNED FOR STORAGE AND HANDLING OF CLEAN COAL WITH THE FOLLOWING PROPERTIES:
   DESIGN BULK DENSITY = 65 PCF
   MINIMUM ANGLE OF INTERNAL FRICTION = 35
   MAXIMUM ANGLE OF INTERNAL FRICTION = 40
   COEFFICIENT OF FRICTION (COAL ON CONCRETE) = 0.6
   COEFFICIENT OF LATERAL PRESSURE (AT REST) = 0.12 (CONICAL COAL PILE)
   COEFFICIENT OF LATERAL PRESSURE (AT REST) = 0.36 (LEVEL COAL PILE)
   COEFFICIENT OF LATERAL PRESSURE ( ACTIVE) = 0.075 (CONICAL COAL PILE)
   COEFFICIENT OF LATERAL PRESSURE ( ACTIVE) = 0.225 (LEVEL COAL PILE)

2. THE STACKING TUBE IS DESIGNED FOR LOADS IMPOSED BY HSC-3 AND THE HEADHOUSE.

3. THE DESIGN LOADS IN ADDITION TO CONCENTRATED LOADS INDICATED OR REFERENCED ON DRAWINGS ARE BASED ON THE FOLLOWING:
   WIND: BASIC WIND VELOCITY = 90 MPH (ASCE 7-98)
   EXPOSURE D WITH AN IMPORTANCE FACTOR = 1.15
   AND A CIRCULAR SHAPE FACTOR , Cf = 1.0

   SEISMIC: IBC 2000
   $S_s$ =0.2g $S_1$ =.08g

4. THE STACKING TUBE IS DESIGNED FOR "JUMPFORM" TECHNIQUES OF CONSTRUCTION.

5. THE STACKING TUBE IS DESIGNED FOR A REPOSING CONICAL COAL PILE SURROUNDING THE TUBE AFTER BEING FILLED FROM THE TOP. THE STACKING TUBE IS DESIGNED FOR OVERTURNING MOMENTS CREATED BY ECCENTRIC DRAWOFF OF THE COAL PILE. THE STACKING TUBE IS DESIGNED TO RESIST OVERTURNING MOMENTS CREATED BY ECCENTRIC COAL PILE LEVEL ON ONE SIDE TO A MAXIMUM ELEVATION OF 755'-0".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PROJECT #0512