L I N B E C K

March 15, 2013

The Honorable Judge Ed Emmett
Harris County
1001 Preston, Suite 911
Houston, Texas 77002

RE: Reliant Astrodome

Dear Judge Emmett:

Linbeck Group and WP Moore have been engaged by the Houston Texans and Houston Livestock Show & Rodeo to develop a scope of work, budget and schedule for the decommission and demolition of the Reliant Astrodome, and the construction of a parking lot in it's place. Our efforts included:

- New Hazardous Material Survey
- Use of Existing Surveys and Geotechnical Reports
- Review of Several Demolition Methods
- Investigation of Critical Existing Campus Utilities
- Specification of an Engineered Soil System
- Design of a Surface Parking Lot

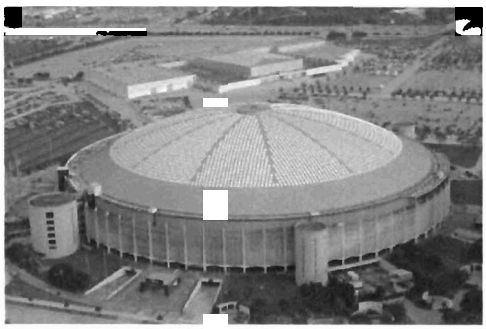
Local subcontractor feedback was critical to develop our Budget and Schedule. It is our professional opinion the Reliant Astrodome can be decommissioned and demolished safely and the site be readied for a new purpose.

Very truly yours,

John D. Go, AIA, LEED AP
Vice President & Client Executive
Enclosure

cc: El Franco Lee
Jack Morman
Steve Radack
Jack Cagle
Jamey Rootes
Skip Wagner

EXECUTIVE SUMMARY

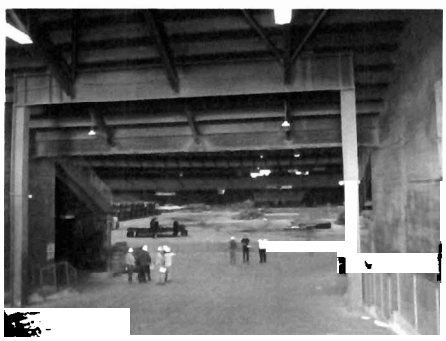


Introduction

The Reliant Astrodome was constructed in 1964 and was host to the Houston Astros (Until 1999), Houston Oilers (Until 1996) and the Houston Livestock Show and Rodeo (Until 2003). The Astrodome was constructed to accommodate approximately 55,000 spectators. There was a major expansion to the Astrodome in 1989 in which approximately 10,000 seats were added as well as four pedestrian ramps. Walter P. Moore and Associates served as the Structural Engineer of record for both the Astrodome and the Astrodome Expansion.

The Astrodome structure is comprised of concrete and steel and is enclosed with a spherical steel lamella dome system designed by Roof Structures Inc. The following are some metrics of the Astrodome:

- Geometry
    - Area Covered – 9.14 Acres (398,138 Sq ft)
    - Dome Roof Diameter – 642 ft
    - Outer Stadium Diameter – 710 ft
    - 212' Tall from Playing Field to Apex of Dome
- Structural Quantities
    - Concrete – 50,000 cubic yards
    - Steel (Dome Roof Structure) – 3,000 tons (6,000,000 lbs.)
    - Steel (Reinforcing) – 3,100 tons (6,200,000 lbs.)
    - Steel (General) – 7,500 tons (15,000,000 lbs)



After serving the Houston area sports and entertainment fans for more than 40 years, the Astrodome was officially closed in 2006.

The Astrodome site is currently unused and is in a state of disrepair. The current location of the abandoned Astrodome provides logistical challenges for current programming and parking needs for various tenants of the Reliant Park complex. The Houston Livestock Show and Rodeo utilizes much of the parking lots to the south and east of the Astrodome. Currently Rodeo patrons attending events in Reliant Stadium have to walk around the aban-

doned Astrodome to access Rodeo festivities in the parking lot to the east of the Astrodome.

Scope of Work

The Houston Texans and Houston Livestock Show and Rodeo engaged Linbeck Group and Walter P Moore to provide a budget, schedule, and scope of work definition for the demolition of the Reliant Astrodome and the development of a parking scenario. Conceptual drawings and narratives were developed by the team to help better define the scope of work, budget, and schedule.

As part of the scope of work, Walter P Moore provided conceptual narratives and sketches related to the demolition of the Astrodome as well as the construction of a new surface parking lot. The scope of work was preliminary in nature and was not a comprehensive evaluation.

Limitations of Scope of Work

Because of the limitations of the study, the scope of work did not include the following:

- Condition assessment of the Astrodome Structure (including but not limited to):
    - Astrodome Roof
    - Astrodome Superstructure
    - **Astrodome retaining walls.** Tie back system and Cathodic protection system
    - Dewatering System
    - Lift Stations
- Engineered demolition documents
- Construction Documents
- Traffic Impact Analysis
- Design and Construction of a Plaza or Midway where the Astrodome now stands

Findings and Recommendations

There are two distinct phases to the project. The demolition phase and the new construction phase. There are currently several utilities that would require either capping or relocation. There is an existing electrical substation that is located on the east side of the Astrodome site. Currently, the existing electrical substation provides power to the Reliant Arena, parking lot gates, parking lot lighting, and the central plant. In order to provide uninterrupted service to those areas, a new electrical substation has to be constructed and commissioned before de-commissioning and demolition of the existing electrical substation. Currently the schedule for approval of a new electrical substation takes approximately 12 months.

Carruth Plaza currently resides in the northwest corner of the current Astrodome site. As part of the demolition phase, the statues and artwork that reside in Carruth Plaza shall be dismantled and stored. The current water-feature should be protected in place. Once the new parking lot is constructed, Carruth Plaza can then be reconstructed.

There are three options for the demolition of the Astrodome. Each one has certain considerations and cost implications.

- Demolition Phase
    - Option 1 – Implosion of Astrodome
        - Cost - $ 7,300,000
        - Schedule – 16 Months
        - Considerations:
            - Proximity to Reliant Stadium
            - Proximity to adjacent structures
            - Protection of existing systems
            - Structural Integrity
    - Option 2 – Engineered Demounting
        - Cost - $ 11,800,000
        - Schedule – 20.5 Months
        - Considerations:
            - Proximity to Reliant Stadium

- Protection of existing systems
- Structural Integrity

- Option 3 – Engineered Demount of Roof and Implosion

  Cost - $ 11,800,000

  - Schedule – 20.5 Months
  - Considerations:
    - Proximity to Reliant Stadium
    - Proximity to adjacent structures
    - Protection of existing systems
    - Structural Integrity

- New Construction Phase – Surface Parking Lot
  - Approximate number of parking spaces – 1,600
  - Cost - $ 27,800,000
  - Cost per Parking Space: $ 12,800
  - Schedule – 29 Months (Includes Demolition Phase)
  - Project Specifics and Considerations

    Approximately 30' of fill required

    - Parking Lot will experience between 7" to 10" of settlement over time
    - Parking Lot will require resurfacing after settlement occurs

We recommend demolition option 1 as the preferred demolition option given the proposed schedule and cost savings over the other two demolition options. As noted in the demolition section of this report, the demolition contractor must take special precautions to not damage any of the adjacent buildings including the Reliant Stadium and its mechanized roof system.

The drawings and narratives that follow are conceptual in nature and are not to be considered as demolition or construction documents.