

A BASEBALL STADIUM FOR PITTSBURGH

Submitted as partial fulfillment
of requirements for the
Master in Architecture degree
Massachusetts Institute of Technology
August 22, 1960

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Carnegie Institute of Technology 1957

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355 Marlboro Street
Boston 15, Massachusetts

Dear Dean Belluschi,

In partial fulfillment of the requirements for the degree Master
in Architecture, I submit the following thesis entitled, "A Base-
ball Stadium in Pittsburgh".

Sincerely,

Allan S. Anderson

Pietro Belluschi
Dean, School of Architecture
and Planning, M. I. T.
Cambridge 39, Massachusetts

A BASEBALL STADIUM FOR PITTSBURGH

ACKNOWLEDGEMENTS

I would like to express my gratitude to those members of the faculty who have given their counsel towards the pursuit of this project. The help of Mr. Edward Frayer of the Civic Auditorium Authority of Pittsburgh; Mr. R. Murtry, Senior Planner of the Pittsburgh City Planning Commission; Michael Githens, Pittsburgh City Traffic Engineer; and Mr. Heron of the Pittsburgh Pirates is hereby acknowledged.

The above together with the generous assistance of Poul van der Wal and the inspiring help of my wife, Barbara, have made this project possible.

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ABSTRACT

A. Title: A Baseball Stadium for Pittsburgh

B. Name of Author: Allan S. Anderson

C. Submitted for the degree of Master of Architecture in the Department of Architecture on August 22, 1960

The inadequacy of Forbes Field, Pittsburgh's present baseball facility, due to a congested site, lack of parking space, and an outgrown, deteriorated physical plan has forced the Pittsburgh Pirates to consider moving to another municipality. The City of Pittsburgh to prevent this loss of income and entertainment value is currently investigating the possibility of a new stadium.

This thesis proposes such a stadium on a site across the river facing Pittsburgh's Golden Triangle together with a parking facility and recreational usages along the waterfront site.

The program was developed in cooperation with the Pittsburgh Pirates and the planning authorities in Pittsburgh, and is expected to become a reality before 1970.

A B A S E B A L L S T A D I U M F O R P I T T S B U R G H

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THE NEED

Major League baseball is involved in a process of expansion to new cities and to a possible third Major League. The population growth has placed several additional metropolitan areas in to the Major League class. As a recent editorial put it, "It is, in fact nothing more than sheer arithmetical logic to suppose that by the turn of the Century, barring a loss of interest in their national sport, Americans may be prepared to support almost twice as many major clubs as at present." ¹

Existing clubs are feeling the need for expansion and better facilities. The Pittsburgh Pirates are such a team. It has become increasingly evident that Forbes Field is inadequate. Located in the Oakland district of Pittsburgh as a crowd generating facility it strangles and competes with the shopping and university functions in that area. Business, according to local merchants comes to a standstill during games and the students of the University of Pittsburgh, most of whom commute, find their campus almost inaccessible at these times.

A recent survey in Oakland conducted by the Pittsburgh Parking Authority counted 6,008 public parking places. 3,758 are curb spaces, leaving 2,250 off street spaces that are not affected by 10 minute, 30 minute and 60 minute time limits, and the necessity to prohibit parking to

1. Editorial. Christian Science Monitor. July 25, 1960. p. 10

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gain more lanes of traffic on heavy days. In short the parking situation in Oakland falls far short of the needs.

The physical plant of Forbes Field leaves much to be desired in capacity, in facilities and as architecture. Thirty three years old the present seating is 35,000. The management feels 45,000 or 50,000 would be desirable in a more accessible site. A talk with the club officials indicated that the supporting activities such as offices and club rooms are crowded. Architecturally, Forbes Field is an ugly, disconnected collection of steel and concrete rectangular stands resulting partially from an attempt to compromise its shape with football and partially from a series of expansions. (plate 1)

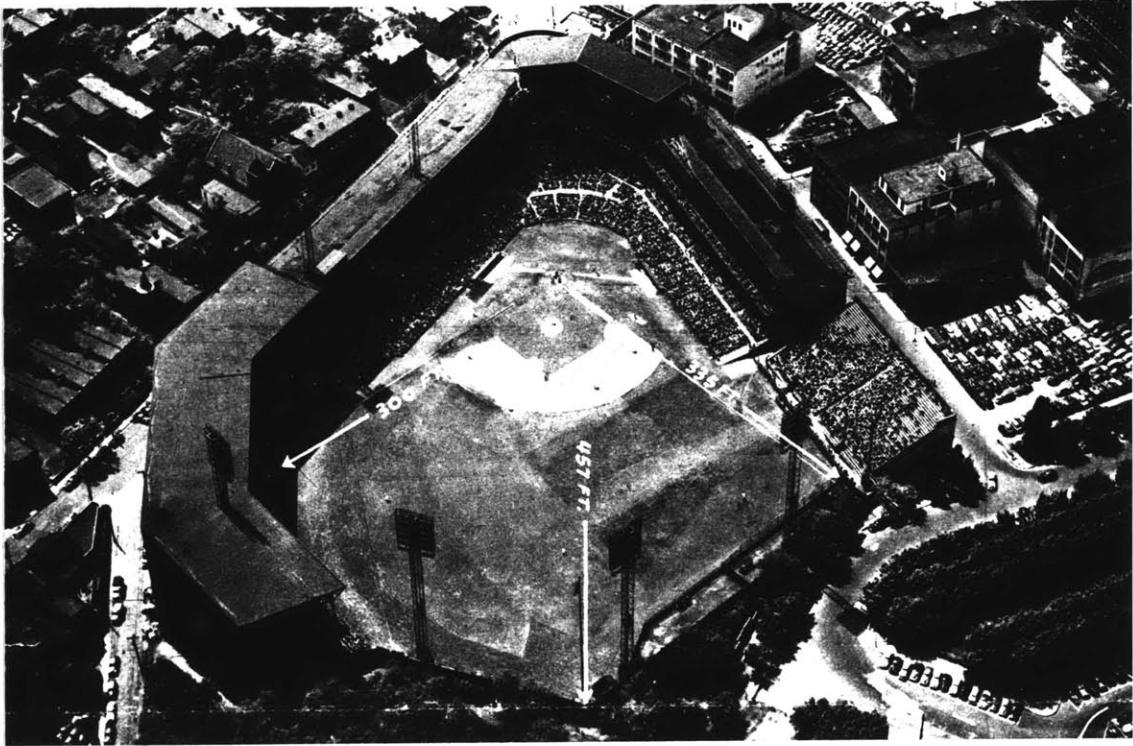
To consider all solutions to the problem the existing building could be renovated and expanded. Parking structures could be added to the Oakland area. Pittsburgh authorities have considered this as an alternative but have recently concluded that a relocation and a new structure are in order.

The possibility of losing the Pirates to another town has encouraged the City Fathers to expedite a solution to the problem. The loss of the team means a loss of recreational value, publicity and revenue both from taxes on income and from out of town visitors.

Thus, having established a need and the desire for relocation the next question is where to locate the proposed stadium.

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PLATE ONE: FORBES FIELD



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THE SITE

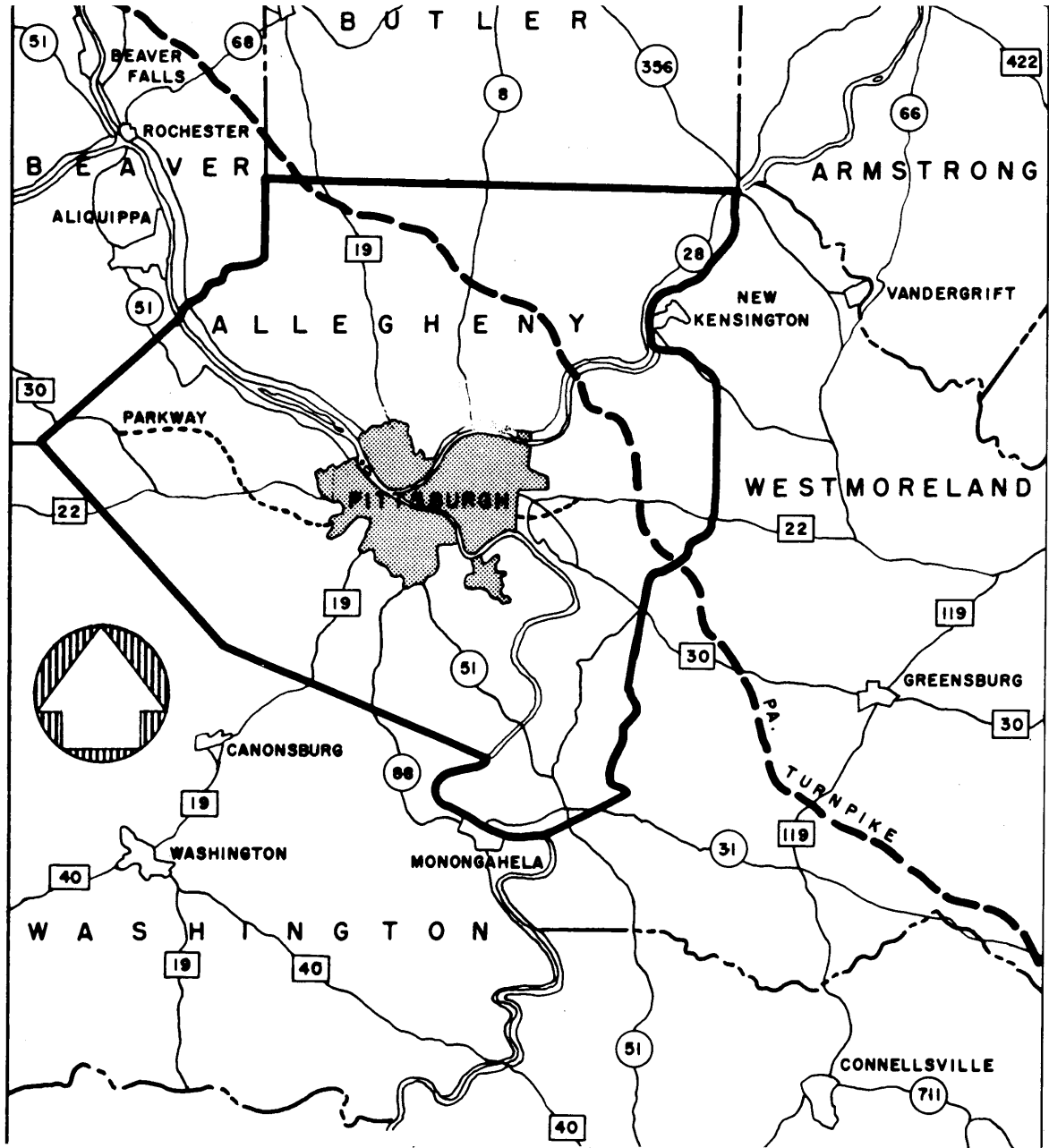
Greater Pittsburgh with a population of two million is located near the center of Allegheny County at the confluence of the Monongahela and Allegheny Rivers forming the headwater of the Ohio River in Western Pennsylvania.

Since 1956 when the idea of a new stadium began to arouse public interest five sites have been suggested in the Allegheny County area (plate 2):

1. The South Park proposal uses the old oval as a site for a stadium. The initial site would certainly be minimum, however, the accessibility to this area by people from all over the county would be difficult. In a conversation with Mr. G. McDonough, Director of Parks, it was learned that he no longer finds South Park ~~as~~ an acceptable site.
2. Penn Township has bid for the new facility. According to Mr. Chester Keith, the land costs are high in this area and here again, accessibility is poor because of road conditions. The only reason advanced for the use of this site was that there was labor available for running the facility.
3. Harmarville as a proposal boasts more advantages. Although the land costs are as high as the other sites suggested, it is near the turnpike and 1 new radial highway under construction by the the state. It is accessible by rail and river. The proximity of the river offers addition-

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PLATE TWO: ALLEGHENY COUNTY



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al sports development possibilities. A township amusement tax could be levied for financing the project, which, when levied within the City of Pittsburgh, has to be spread among many other facilities.

4. The Monument Hill area would involve the highest initial land acquisition costs. However, the area may be certified for urban renewal planning which means that a future Stadium Authority could buy it from Urban Renewal for what it could afford to pay. Two-thirds of the difference would be paid for by the Federal Government with City throwing in the value of the streets and administrative costs as its third. Most of the housing in this proposed site is substandard with some intermediate areas. 87.3% is without bath or running water, or dilapidated. Half of the industrial buildings are old and in poor condition. Accessibility with the existing and proposed radial highway plan for all parts of the county is excellent - all parts to be within 1/2 hour's drive. The highways in the immediate area are calculated to handle large volumes of rush traffic. It is served by streetcar and rail with the river also offering additional recreational facilities. The site is also within walking distance from the downtown Pittsburgh and North Side commercial areas where the Stadium parking facilities could be used for additional space during the week, and in which many hotels, restaurants, and shopping facilities could serve the visiting spectators. The City of Pittsburgh has tentatively selected this site and is making

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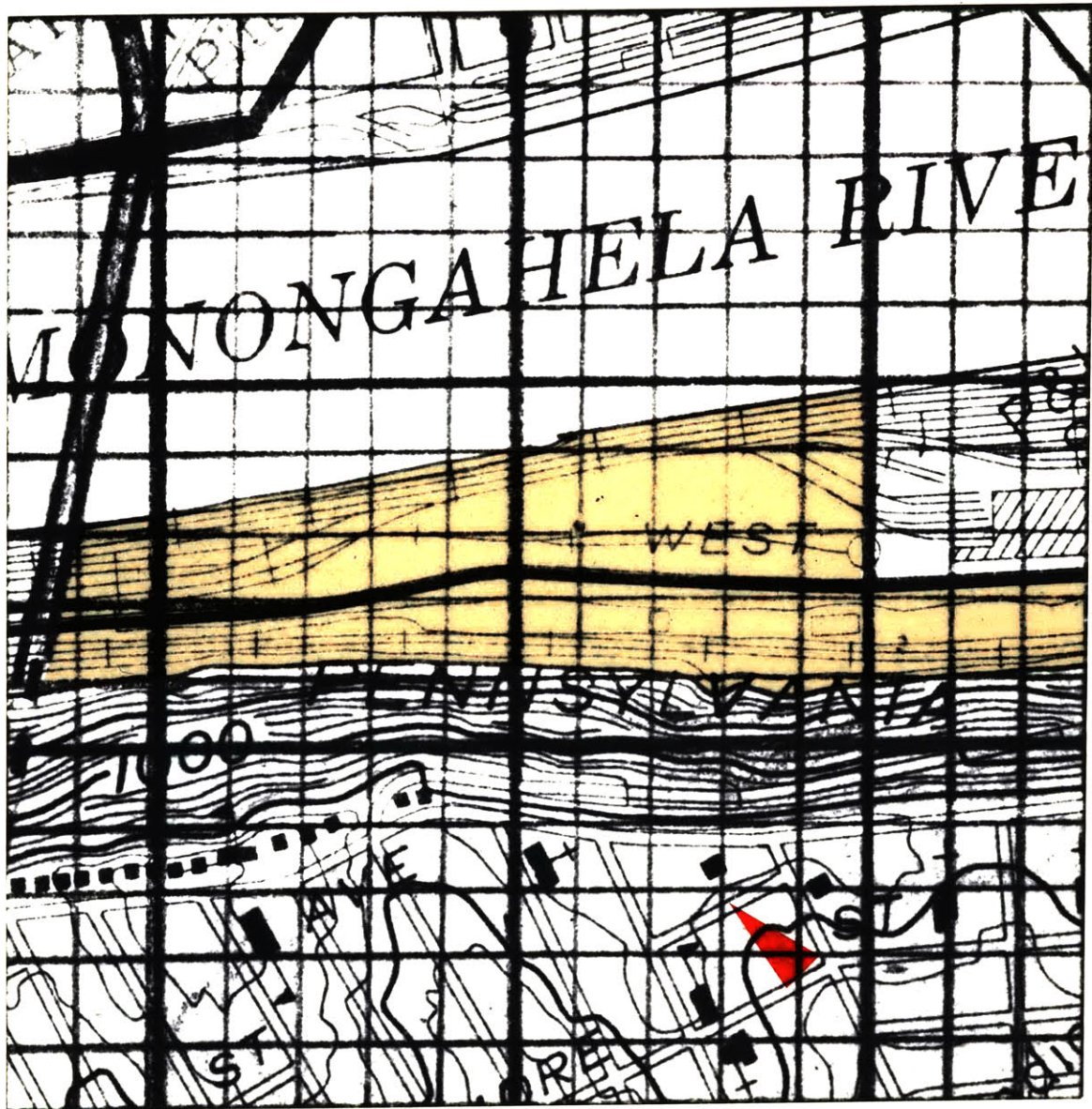
a detailed investigation of its feasibility.

5. The Mount Washington site is suggested by the author of this thesis as another possible alternative, with many more advantages than the Monument Hill site. (Plate three) Located at the foot of Mount Washington between the Fort Pitt Bridge and the Smithfield Street Bridge, the land acquisition would involve buying old railroad yards which also comprise most of the Monument Hill site. If federal aid would assist in the one situation it would be applicable in the other. Both sites are within one half hour's drive of all parts of the county, near many major traffic arteries, near several public transportation lines and are within a short distance of downtown Pittsburgh, Mount Washington being somewhat nearer, and thereby could complement the area's parking facilities.

But they are opposed in orientation and face different parts of cityscape across the river. Here is where the advantages and disadvantages become apparent. For a baseball stadium, being an open form, demands a pleasant vista where one is available and a specific orientation. At Monument Hill these requirements conflict but at Mount Washington they coincide. At Monument Hill the site faces the empty Point State Park and the Fort Duquesne Bridge whereas at Mount Washington the site faces the more visually interesting downtown area, the dynamic center of the Pittsburgh municipality. And finally at

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PLATE THREE: THE MOUNT WASHINGTON SITE



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Monument Hill the stadium would border a quiet residential and park area as compared with the found hundred foot elevation change that separates the Mount Washington site from the residential area behind it.

Having proposed the above location, a closer description of the locale follows. Plate Four is a photograph taken from the top of Mount Washington south of the Fort Pitt Bridge. It shows the site rising slightly to the base of the mountain which then rises abruptly about 400 feet at approximately a 45 degree angle. Across the Monongahela River behind Fort Pitt Boulevard rise the major buildings of Pittsburgh including the recently built Gateway Center buildings. The railroad and the four lane road, West Carson Street, must continue through the site. Above, though not connecting directly to the site, Mcardle Roadway climbs Mount Washington. I have assumed that the Pittsburgh and Lake Erie Passenger Station will remain but that the yards can be acquired as on the Monument Hill proposal. The old bridge abutment may be easily removed. Plate Three, Page 13, shows these highways and railroads with their relation to the city and its highway system, providing access and egress to the site.

To the west the Fort Pitt Tunnel and Bridge carries six lanes of traffic north and south with Route 22-30 carrying four lanes east and west followed quickly by the connection around Mount Washington

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to Route 19 and the Manchester Bridge another North-south system.

To the east the Smithfield Street Bridge carries a trolley line and two lanes North-South. The Liberty Bridge carries six lanes North-south connecting with McArdle Roadway and the Liberty Tunnel, totaling six lanes. West Carson Street continues east with four lanes. Thus fifteen lanes leave almost directly from the site in all directions and are quickly supplemented by additional expressways.

It is my hypothesis, then, that the Mount Washington site with respect to acquirement, orientation, view, relation to the downtown area, relation to surrounding usages, and access is as suitable and in some cases superior to the other sites suggested. In an effort to throw fresh light on the subject, and in an effort to suggest a site which is ideal for Pittsburgh's Baseball Stadium rather than for political reasons, I will use this site to make the terms of the program which follows specific.

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PLATE FOUR: THE MOUNT WASHINGTON SITE



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THE PROGRAM

This program is a result of further research based upon a collaborative study of a stadium for Pittsburgh made at Carnegie Institute of Technology in 1957. As chairman of the collaborative I organized a student group consisting of Civil Engineers, Industrial Administrators, a landscape Architect, an Industrial Designer and several sculptors who helped develop the program in consultation with the various authorities. Of the sites suggested the group selected the Monument Hill site and proposed a football-baseball combination stadium with adjunct facilities. The present program reflects changes in requirements that have occurred during the last three years. Further investigation of the problems of such a stadium have led to this program for a stadium primarily intended for baseball and to a new site which would better accommodate the new program, as discussed in the previous section.

A baseball-football combination can only be a compromise from the start. To begin with the optimum seating patterns do not work well together. Movable seating is possible but is second best. Not only added expense is involved but the patterns would require certain portions of the field to be alternately covered and uncovered by the seats with ill effects to the turf if not the necessity for resodding. At best the Pittsburgh Steelers could only add a quarter of the revenue as compared

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with the baseball team. Baseball demands shaded stands with a sunny field while football calls for sun on the stands, if any, in the late fall games. Warm three hour long baseball games call for comfortable chairs with backs and arm rests while shorter football games in cooler months can be densely packed with spectators on bleachers. The infield of a baseball diamond, though the pitchers mound can be scraped off, must be resodded when shifting from sport to sport and its hard rolled surface is anathema to falling football players. Vertical sight clearances change and football is best viewed from higher pitched stands. Thus this program eliminates the football requirement to obtain a better baseball stadium.

Another major change in the program made by the authorities is a reduction of seating capacity from 80,000 in the first proposal to 45,000 in this program. This number is according to the specifications of the Pirates. Although crowds could occasionally exceed this number, the difficulty of advance sales becomes greater with added capacity. Parking requirements have been reduced from 15,000 to 6,000, relying upon down town Pittsburgh to provide the extra spaces, according to Mr. Edward Frayer in a recent interview.

The other facilities in the program are included as suggestions for the use of the site's remaining space and water frontage for recreation if this could be made available. In reality this area would likely be a

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vast one level parking lot as recent studies of the Monument Hill site have shown. It may be justifiable to assume in an urban site a multi-level parking structure. Such is my assumption.

The site is described generally in the previous section. Between the two bridges stretches 3,260 feet of shore line approximately 800 feet deep to the toe of the slope of Mount Washington making a total of sixty acres including the station. The program includes:

1. Stadium

a. General Requirements

utility room	900 sq. ft.
work shop	1,500 " "
police & toilet	400 " "
ushers & toilet	400 " "
cushion stands	600 " "
miscellaneous storage	1,000 " "
electric vault	300 " "
transformer vault	600 " "
umpire's room & toilet	600 " "
telephones: 40	320 " "
concessions	3,000 " "
men's toilets	5,000 " "
commodes: 18	

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lavatories: 40		
ticket booths: 10 to 15		
press club, small bar, & kitchen toilet	2,000	sq. ft.
press box	1,200	" "
radio and private boxes, glass enclosed	2,000	" "
photographers' boxes	300	" "
seats - total: 45,000		
ground equipment storage	5,000	" "
b. Baseball Club Facilities: 3,100 sq. ft.		
manager & toilet	500	" "
trainer	300	" "
locker room	1,500	" "
drying room	100	" "
showers & wash rooms	500	" "
trunk storage	200	" "
c. Visiting Team Club Facilities: same as "b": 3,100 sq.ft.		
d. Baseball Office Facilities: 8,100 sq. ft.		
vault	300	" "
ticket office	1,500	" "
2 toilets - 7 com., 6 sinks, 4 urinals	250	" "
lobby & reception	600	" "
conference room & kitchen	800	" "

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4 offices: @ 300 sq. ft.	1,200 sq. ft.
2 offices: @ 150 sq. ft.	300 " "
filing and work space	3,000 " "
lost & found	150 " "
e. Concession Company Office Facilities: 3,450 sq. ft.	
lobby & reception	300 " "
3 offices: @ 300 sq. ft.	1,500 " "
filing & work space	900 " "
2 toilets - 4 com., 3 sinks, 2 urinals	200 " "
conference room	450 " "
vault	100 " "
2. Parking Facility for 6,000	1,800,000 " "
ticket offices: 8	1,200 " "
general office	600 " "
toilets: 2	100 " "
employee locker rooms	600 " "
employee johns	300 " "
3. Boating and Fishing Facility	
lineal foot of shore line from Fort Pitt Bridge to Smithfield St. Bridge: 3,260'	
1 launching site with 60' wide conc. ramp into water: 60'	
200' shore for rented boat & fishing concession: 200'	

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concession shore area	40,000 sq. ft.
concession building	5,100 " "
concession office	600 " "
concession store, bait, etc.	600 " "
2 employee toilets: @ 50 sq. ft.	100 " "
concession maintenance & repair shop	1,800 " "
concession storage area	2,000 " "
concession dock: 500' lineal with gas pumps:- 1	
launching ramp: 20' wide with track:- 1	
50' long fishing piers:- 4	
public small boat docking in lineal ft:- 400 lin.'	
500 public small boat moorings @ 7.5' /mooring:-	
	3,800 lin.'

4. Bathing Facility

a. bath house

lockers for 5,000	50,000 sq. ft.
toilets for 5,000	2,500 " "
administration space	500 " "
water purification system	2,000 " "
cafeteria concession area	1,500 " "
lunch terrace	5,000 " "
life guard station and maintenance	1,500 " "
umbrella & food concessions, 4 @ 200 sq. ft.	800 " "

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beginner's swimming area, 20 X 100 2,000 sq. ft.

open area (water) 60,000 sq. ft. - $1\frac{1}{2}$ acres

THE SOLUTION

As has been pointed out in a previous section, America may see its national sport double in size by the turn of the century. Even now many new metropolitan areas are entering the Major League class and others are renovating or relocating their baseball facilities. A reconsideration of the design objectives and characteristics of baseball stadiums should begin by reviewing the existing stadiums in the Pirates' League. (Plate 5).²

The photographs of the National League stadiums in Plate five and on Plate one demonstrate the lack of conformity and standards in the existing playing fields and stadiums. Many people argue that this is a part of the game but often as with "Greenberg Gardens" at Forbes Field it becomes an opportunity cater to the home team's particular hitting or playing abilities. With the advent of the use of the "live ball" in baseball and the strong array of right and left handed hitters both left and right field foul lines should be about 340 feet deep with center field a minimum of 400 feet deep. The distance behind home plate to the seats should be between sixty and ninety feet. Forbes Field being one hundred ten feet sometimes allows a runner to score from second base on what is called a passed ball.

2. John Patterson. Ball Parks are Different. "Pittsburgh Press."

July 24, 1949. pp. 10-11

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PLATE FIVE: NATIONAL LEAGUE BALL PARKS



WRIGLEY FIELD. Note the sea of white shirts in center field. This year the management put a green canopy over those stands to cut the glare.



EBBETS FIELD. Home grounds of the Dodgers, this field is almost completely surrounded by double-deck stands. Scoreboard is in right.



SHIBE PARK. Both the Phillies and the Athletics call this park home. For the Phils it's a far cry from their old bandbox field—Baker Bowl.



BRAVES FIELD. The National League champions from Boston play home games here. The circular shape makes fences almost equidistant from plate.



CROSLY FIELD. Cincinnati's park, home, is tough for Kiner. He has hit only two homeis there in his career.



SPORTSMAN'S PARK. The Cards play here but the field is owned by the Browns. The national league entry plans to construct a field of its own.

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The baseball stadium, when an attempt to compromise with football is not made, is an open form. For the best seats lie immediately around the infield and their desirability decreases going towards the outfield. Perhaps the baseball stadium's historical precedent is the Greek theater, also an open seating form as opposed to the closed forms of Roman colisseums and theaters. A pleasant view generally terminated the open axis and would also be ideal for baseball. Centerfield bleachers with the glare of white shirts has always been a bane to the batter. Thus the solution is an open form with the number of seats tapering off towards the outfield and a pleasant view across the Monongahela to downtown Pittsburgh.

The orientation with the third base line running North-South is directed to give the batter glareless northeast light and to shade the stands during the afternoon. An especial benefit of this site; the team at field has the usual south sky glare cut by the green of Mount Washington.

Grandstands are most safely and quickly filled from the top down, and emptied from the bottom up. Hence, in the solution, all seats are approached from above, resulting in a small amount of circulation that goes up to go down. The circulation pattern has been sized to allow emptying the stadium safely in fifteen minutes according to the system recommended by William N. Woodbury in Grand Stand and Stadium Design.

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The seating angles have also been calculated by Woodbury's system.³ The concessions and restrooms are located near the aisle exits for ease of use during the three hour long games. Lighting for night games, which are increasing in popularity, is raised high to avoid glare to players and spectators and is incorporated into the geometry of the stadium. The scoreboard is located in centerfield on axis to allow ease of viewing. Drainage is accomplished by a trench running around the field which is pitched 6" from the center. The trench also allows the visually unobstructing passage of participants from one section of the field to another.

A parade entrance also serving for groundkeeping equipment and vehicles is provided in the outfields. Parades could originate in downtown Pittsburgh, cross the Smithfield Street bridge and enter the site to allow use of the stadium as an assembly point for large gatherings, civic and private.

Handling the six thousand cars in a multilevel garage requires indirect access to the fifteen lanes of traffic entering and leaving the site. Patrons park, move to the outside of the structure without crossing the main circulation way and continue walking toward the stadium under

3. William Woodbury. Grandstand and Stadium Design. American Institute of Steel Construction, Inc. 1947, pp. 54-63

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cover and with the panorama of Pittsburgh spread out before them towards the river.

The club rooms and office facilities are separated from their usual places under the grandstands. Separate access and natural light are thereby afforded. These and the other facilities on the site are not developed in great detail for the major architectural investigation has been made on the stadium itself, more thoroughly depicted in the architectural drawings.

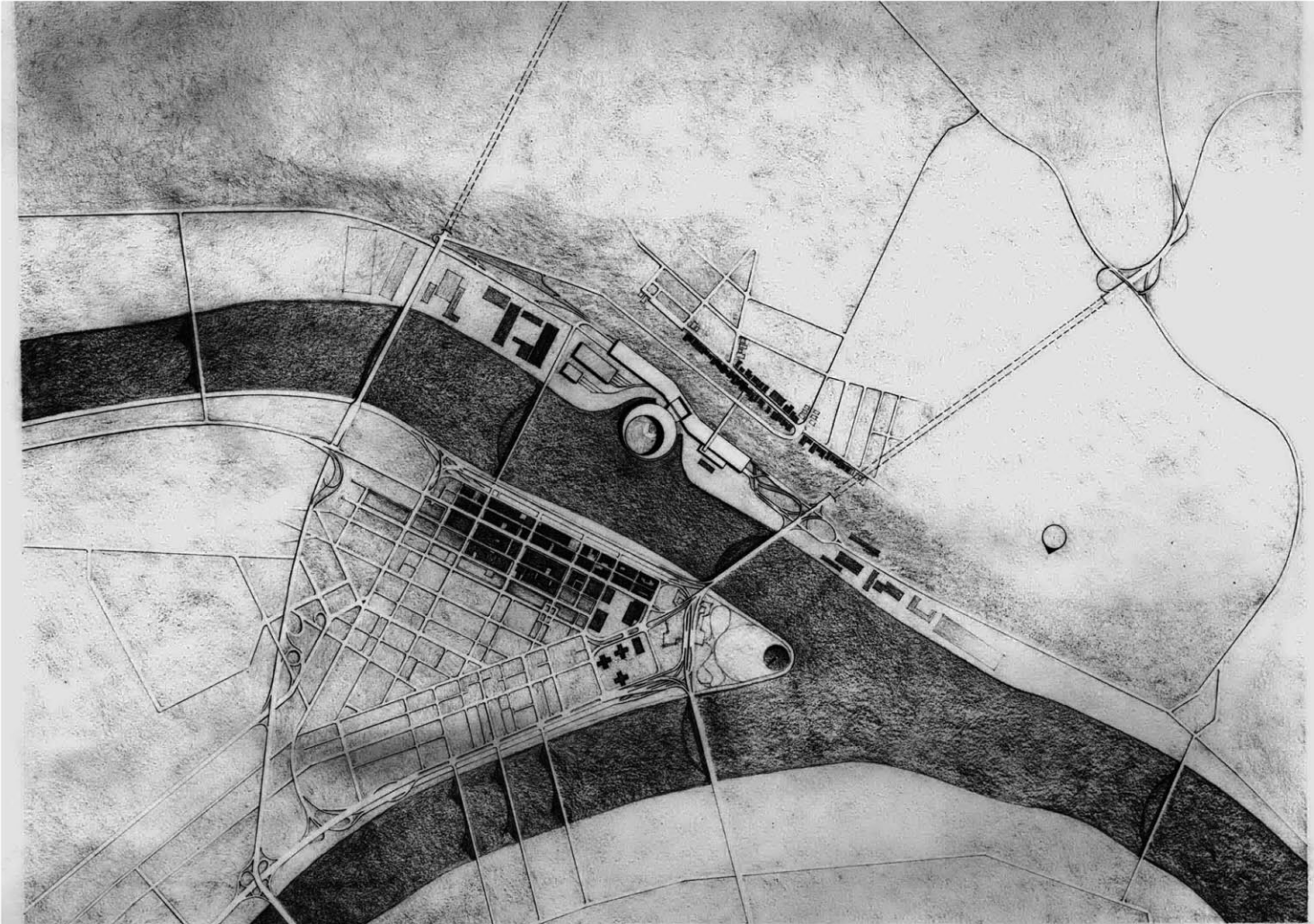
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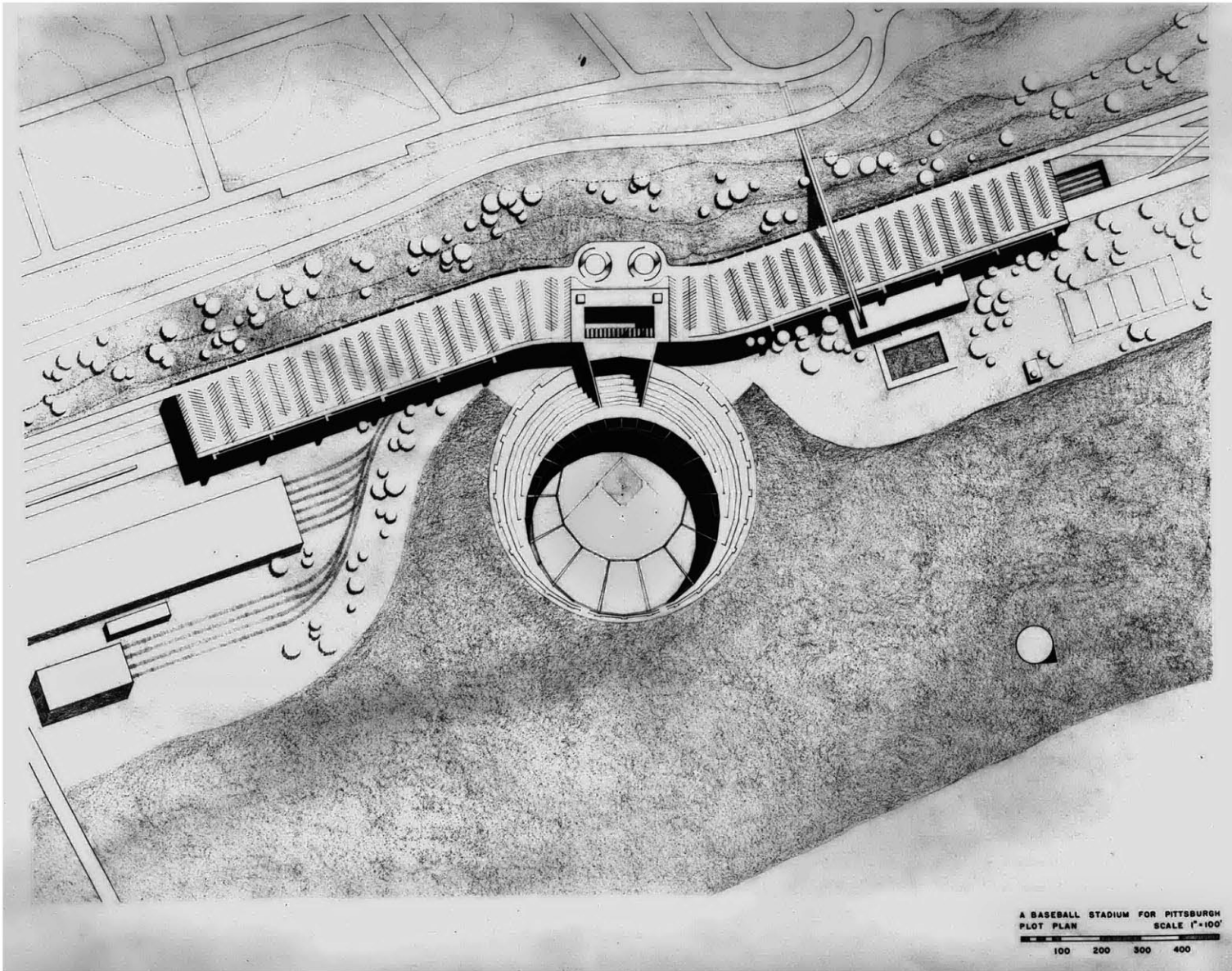
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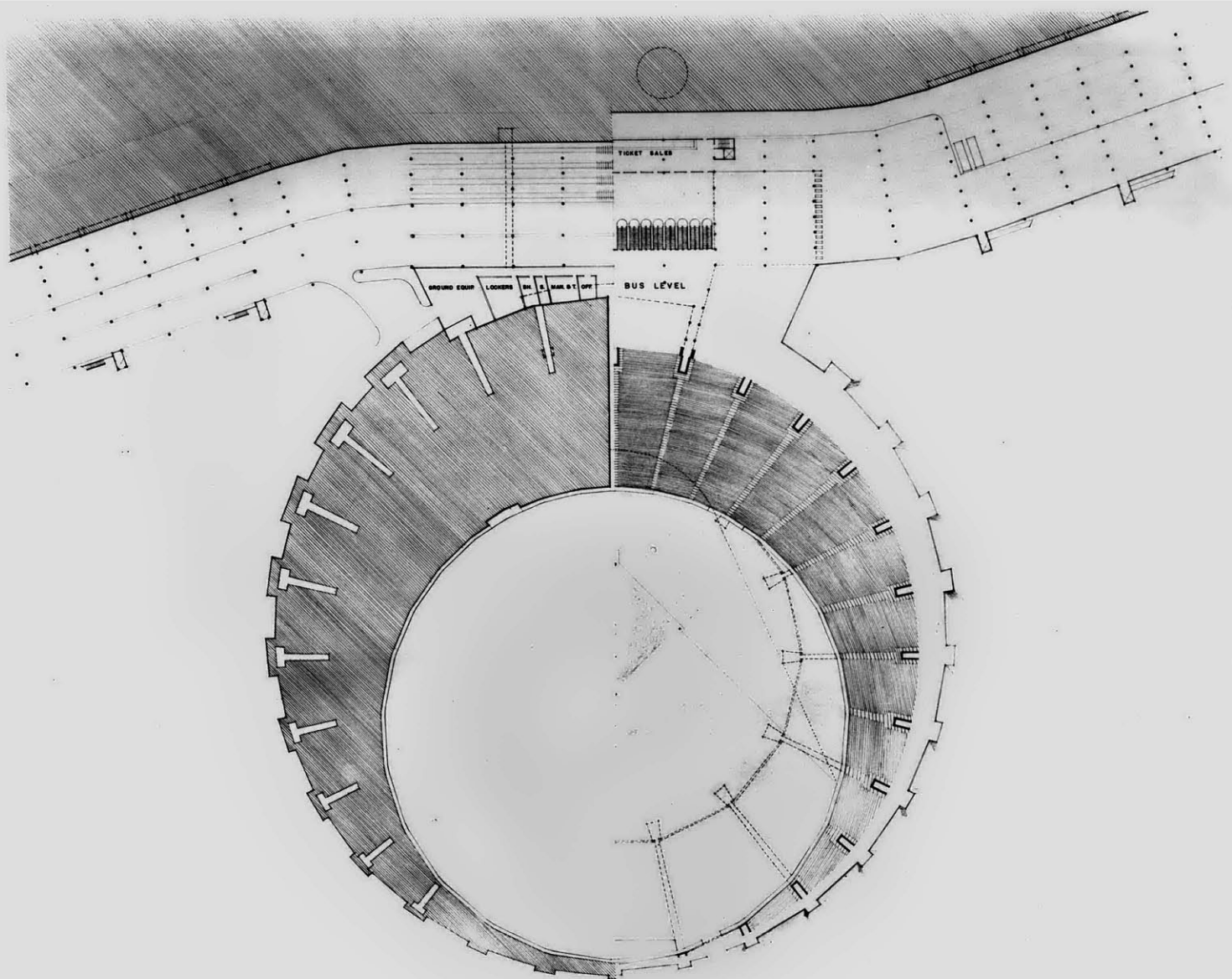


A B A S E B A L L S T A D I U M F O R P I T T S B U R G H

ALLAN SWAN ANDERSON
MASTER THESIS SEPTEMBER 1960
AREA PLAN SCALE 1"=500'
0 500' 1000' 1500' 2000'



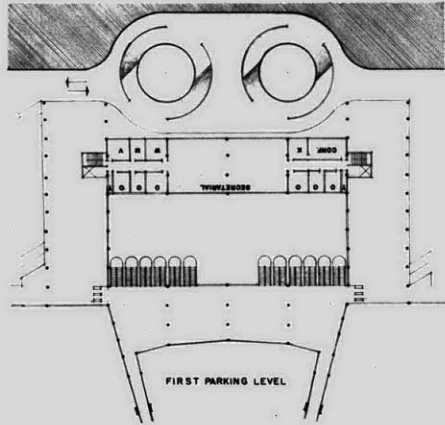
A BASEBALL STADIUM FOR PITTSBURGH
PLOT PLAN
SCALE 1"=100'
100 200 300 400



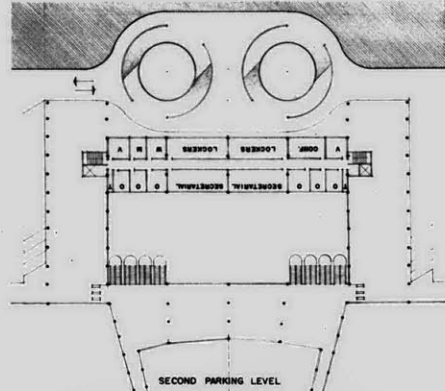
LOWER LEVEL

SEATING PLAN

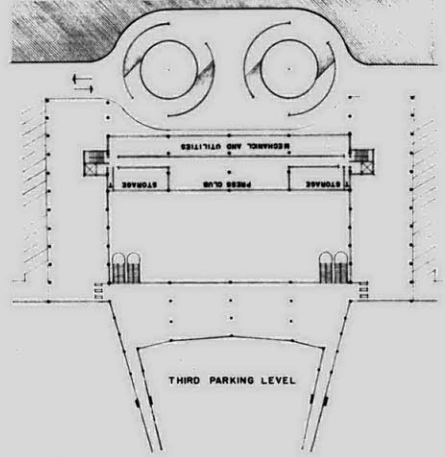
A BASEBALL STADIUM FOR PITTSBURGH
 PLANS SCALE 1" = 40'
 40 80 120 160



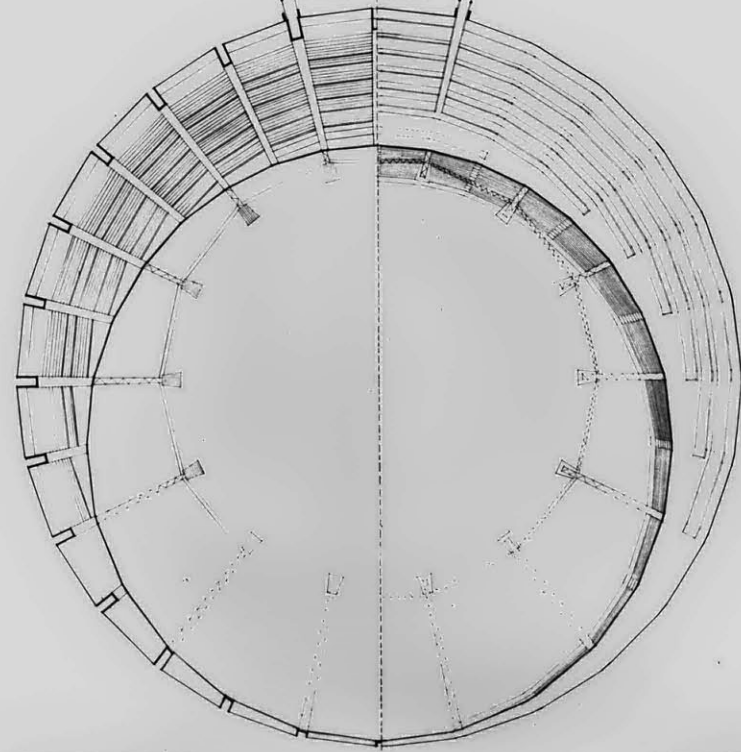
FIRST PARKING LEVEL



SECOND PARKING LEVEL



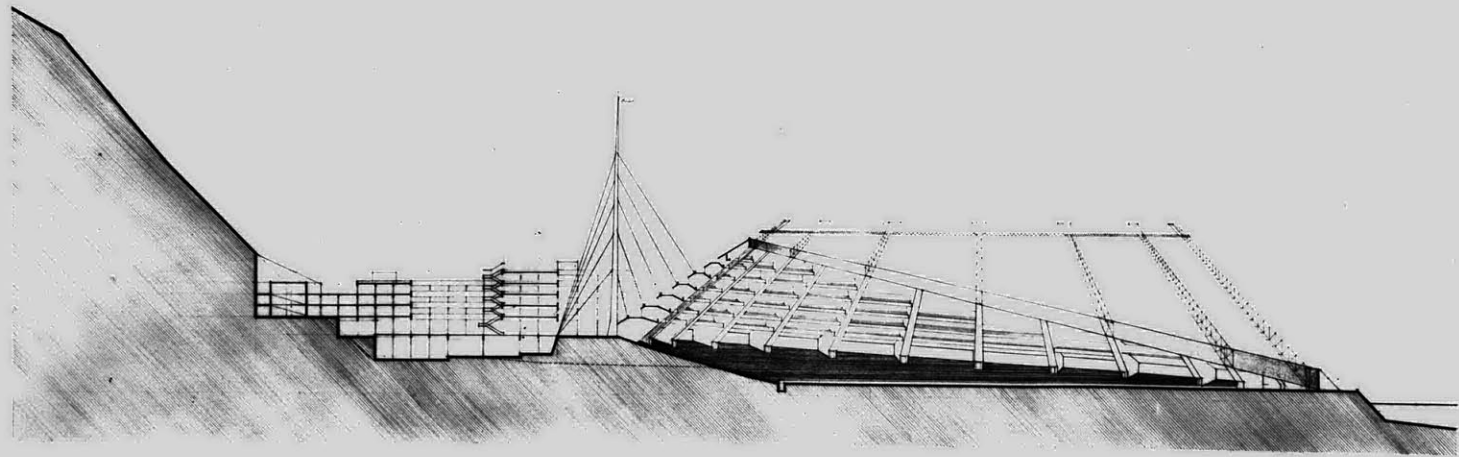
THIRD PARKING LEVEL



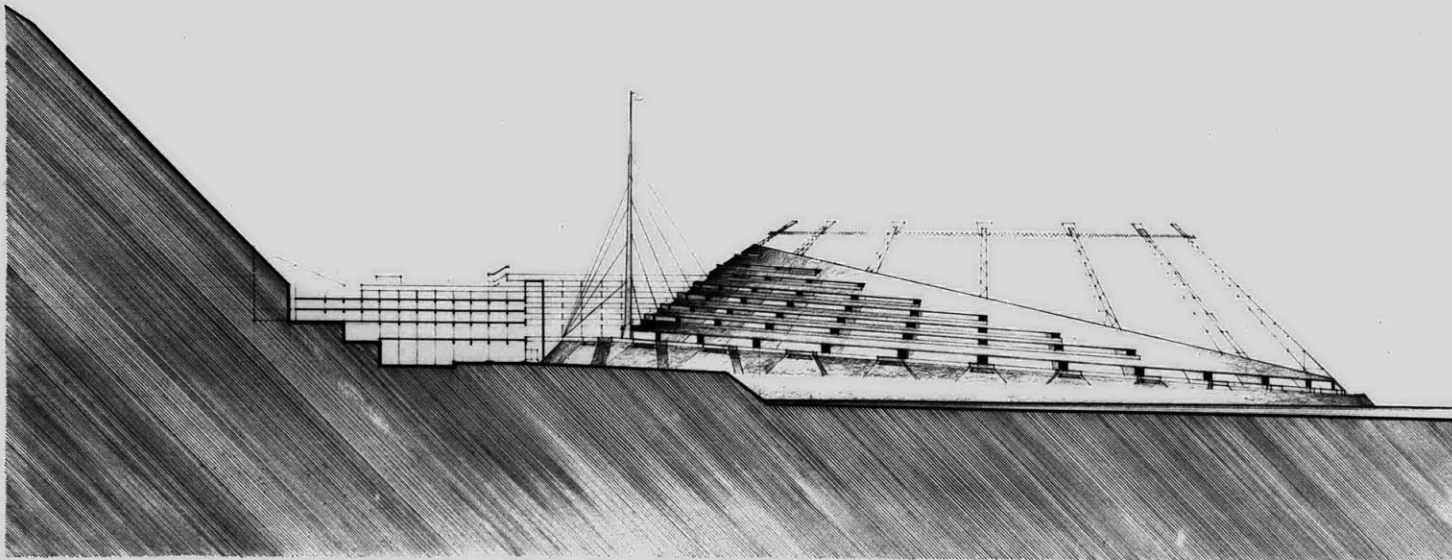
REFLECTED CEILING PLAN

ROOF PLAN

A BASEBALL STADIUM FOR PITTSBURGH
 PLANS SCALE 1" = 40'
 40 80 120 160

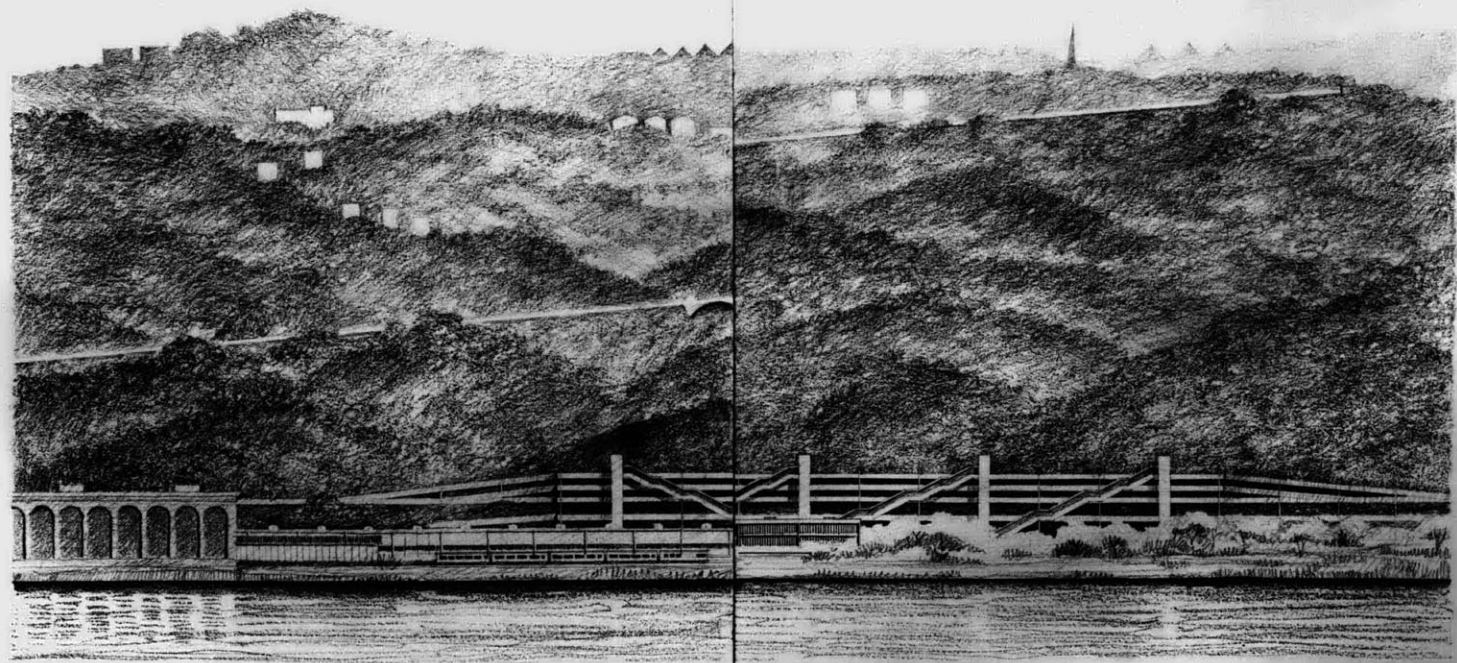


A BASEBALL STADIUM FOR PITTSBURGH
SECTION SCALE 1" = 40'
40 80 120 160



A BASEBALL STADIUM FOR PITTSBURGH
SECTION ELEVATION SCALE 1" = 40'
40 80 120 160





A BASEBALL STADIUM FOR PITTSBURGH
ELEVATION SCALE 1" = 40'
40 80 120 160

