PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

JERSEY SHORE UNIVERSITY MEDICAL CENTER
PERIOPERATIVE CRITICAL CARE TOWER
NEPTUNE, NEW JERSEY

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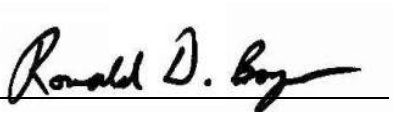

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INTRODUCTION

We have completed our preliminary geotechnical engineering investigation and study for the proposed Perioperative Critical Care Tower project at the Jersey Shore University Medical Center (JSUMC) campus in Neptune, New Jersey. The purposes of this study were to: 1) research and review available site information; 2) obtain subsurface information by drilling borings at accessible site areas; and 3) provide preliminary recommendations for site preparation, foundation design, and other geotechnical aspects of the proposed development. No environmental investigation or sampling was performed as part of this investigation and study.

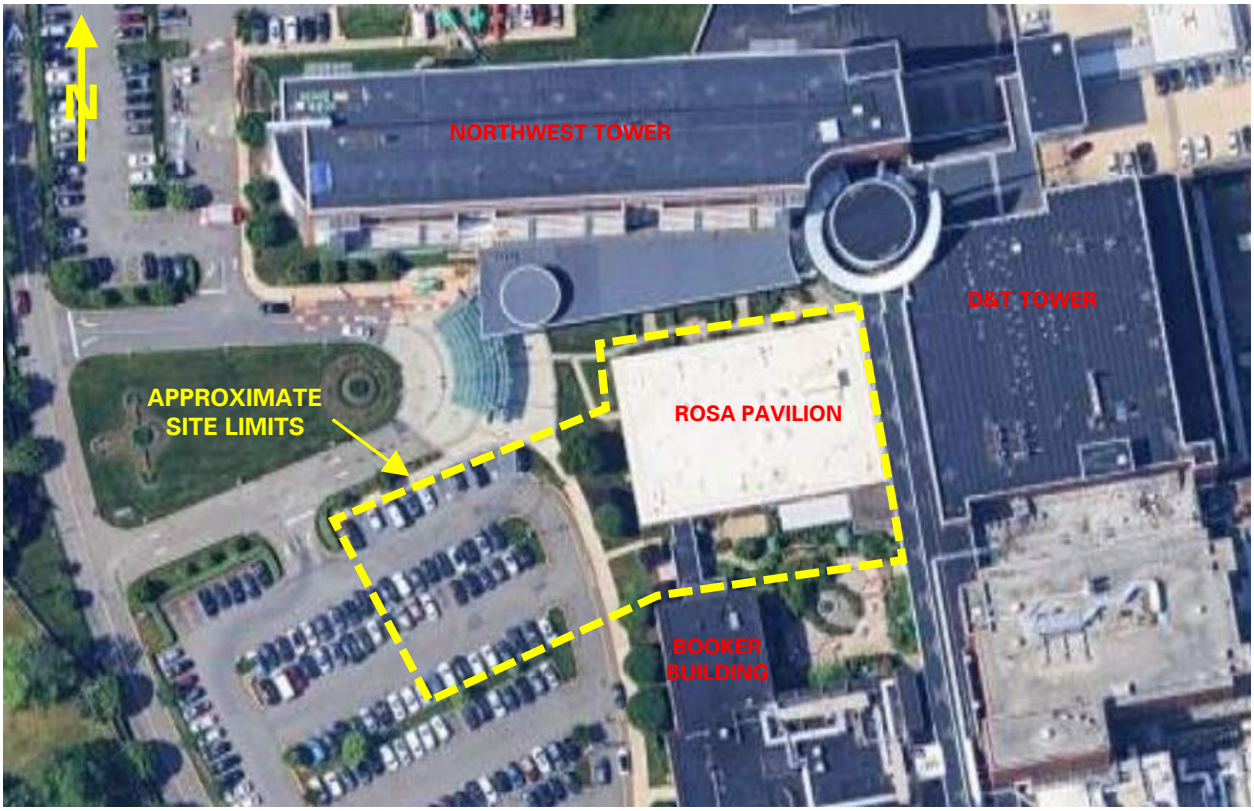
REPORT DATUM

Elevations provided in this report are approximate and are based on the elevations provided in the drawing titled "Boundary Survey with Topography" dated 11 July 2014 and prepared by Dewberry Engineers, Inc. Unless noted otherwise, elevations given herein are referenced to the above-referenced drawing, which references the North American Vertical Datum of 1988 (NAVD88).

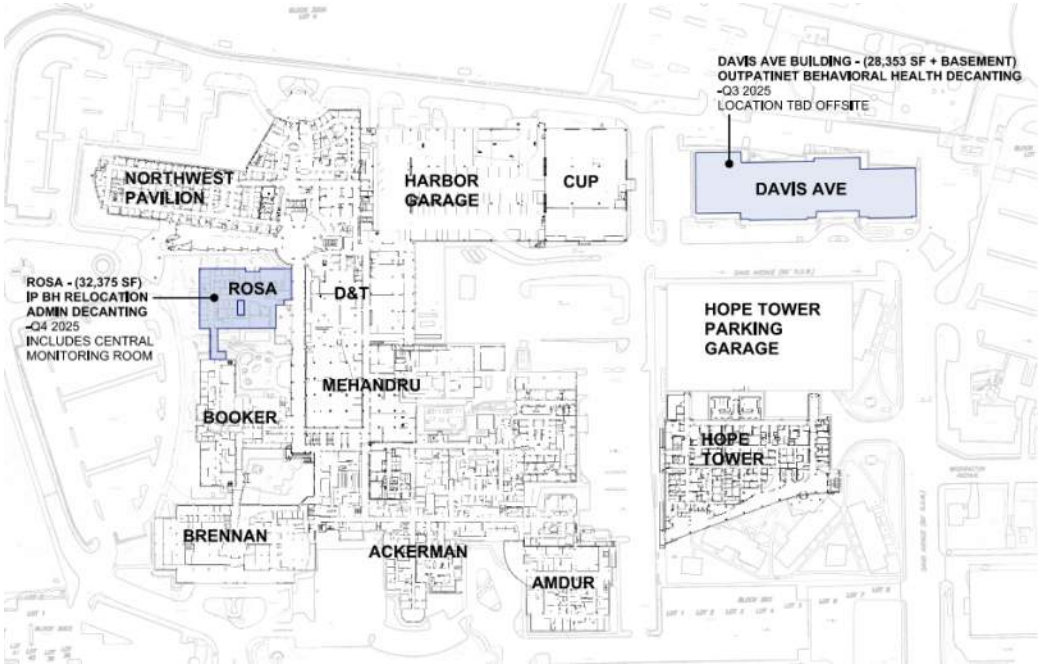
SITE DESCRIPTION

The project site is located at the central portion of the JSUMC campus, which is located at 1945 Route 33 in Neptune, New Jersey. The JSUMC campus is generally bound by the Neptune High School athletic fields to the north, Davis Avenue to the east, Route 33 to the south and residential properties to the west. The JSUMC campus consists of several healthcare facility buildings, parking garages, on-grade parking lots, and access drives.

The Perioperative Critical Care Tower project site is bound by the Northwest Tower and parking lots to the north, site access roads and parking lots to the west, the Booker Building and parking lots to the south and the D&T Tower to the east. The adjacent buildings are discussed in more detail in the following sections. An aerial photograph of the project site and a campus map are provided below and a site location plan is provided as Figure 1.



Aerial Photograph of Site



JSUMC Campus Map

The project site is currently occupied by the 2-story Rosa Pavilion building in the eastern portion of the site and at-grade asphalt parking lots, sidewalks and landscaped areas in the western portion of the site. Exterior surface grades at the site vary from approximate elevation (el) 37.5 to el 40.

Portions of the JSUMC campus, including a portion of the Care Tower site, are mapped with a landfill area. A discussion of the landfill is provided in a subsequent section of this report.

PROPOSED DEVELOPMENT

The proposed development will include demolition of the Rosa Pavilion and construction of a 10-story, approximately 42,000 sq-ft Perioperative Critical Care Tower and associated site improvements. The proposed building will be immediately adjacent and connected to the D&T Tower.

The following information regarding the proposed Care Tower building was provided via email on 11 November 2024 by the project structural engineer (Reuther+Bowen) and project architect (RSC Architects).

- Finished Floor Elevation: el 37.5
- Structural System: Steel Frame
- Typical Column Spacing: 32 ft by 42 ft.
- Service Loads: The maximum service level column load is anticipated to be 3,268 kips.
- Risk Category: Category IV in accordance with the 2021 International Building Code New Jersey Edition (Building Code).
- Below-Grade Space: No basement levels are proposed. Below-grade spaces will include elevator pits and a fire water tank. The maximum depth below exterior grade for below-grade spaces is anticipated to be 7 ft.

REVIEW OF AVAILABLE INFORMATION

We reviewed historic topographic maps, aerial photographs, geologic information, and the Flood Insurance Rate Map (FIRM) for the site vicinity. We also reviewed available foundation plans for the adjacent and nearby buildings, and existing landfill documents. Pertinent information obtained from the above documents is summarized in the following paragraphs.

Historic Topographic Maps

We reviewed historical topographic maps dated 1888, 1893, 1901, 1902, 1943, 1954, 1970, 1981, 1989, 1995, 2014, 2016 and 2019 to evaluate pre-development conditions at the proposed development area. A copy of the 1888 historic topographic map is provided as Figure 2. Copies of all the available topographic maps are provided in Attachment A.

The maps from 1888 to 1902 show the site within a historically undeveloped area. The maps from 1943 through 1954 show the Fitkin Memorial Hospital building located south of the site and a stream is shown located west of the site. A building is shown at the western portion of the site in the 1970 through 1989 maps. The Rosa Pavilion was constructed sometime between 1970 and 1981.

Historic Aerial Photographs

We reviewed historical aerial photographs dated 1931, 1940, 1951, 1953, 1961, 1963, 1970, 1974, 1985, 1995, 2006, 2010, 2015, and 2019 to evaluate pre-development conditions at the proposed development area. Copies of the aerial photographs are provided in Attachment B.

The Fitkin Hospital building is shown south of the site and the majority of the site appears to be a wooded area in the 1931 through 1953 aerial photos. The site area appears to have been cleared sometime between 1953 and 1961. A building is shown on the western portion of the project site in the 1963 and 1970 aerial photos. The Rosa Pavilion was constructed sometime between 1970 and 1974. The building on the western portion of the site was demolished sometime between 1995 and 2006.

The aerial photographs from 2010 through 2019 depict the site conditions as similar to those observed currently.

Regional Geology

According to the New Jersey Department of Environmental Protection (NJDEP) GeoWeb maps, the surficial geology at the site consists of sand, silt, minor clay and pebble gravel of the Upper Colluvium Formation. A copy of the surficial geology map is provided as Figure 3A.

NJDEP's online NJ-GeoWeb geologic map indicates bedrock at the site is expected to be at depths of greater than 100 ft. The soil underlying the surficial soils is expected to consist of quartz sand and clay of the Lower Member Kirkwood Formation. A copy of the geologic map is provided as Figure 3B.

Acid Producing Soils

Kirkwood formation deposits are known to have the potential to be acid-producing soils. Soils become naturally acidic typically due to rainfall/leaching, acidic parent material, and decay of organic matter.

The development of acid-sulfate soils occurs when sulfide minerals (pyrite and/or elemental sulfur, in reduced sulfidic sediments) oxidize upon air exposure through drainage or earth moving operations. The overall acid-sulfate soil-forming process involves a complex chain of reactions, which connect the oxidation of iron sulfides to the release of iron oxyhydrates and sulfuric acids.

Sulfide-bearing (pyritic) marine and estuarine sediment have potential to produce acidic soils. Soils developed on these sulfidic, non-calcareous, marine sediments are strongly acidic (pH < 5.5) to extremely acidic (pH < 4.5).

Flood Map

We reviewed the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community-Panel Number 34025C0333G (revised date 15 June 2022). According to the flood maps, the proposed development area lies within "Zone X – no shading", which is defined as "areas determined to be outside the 0.2% annual chance floodplain". A copy of the referenced flood insurance rate map is provided as Figure 4.

Review of Available Information Regarding the Adjacent Buildings

Our review of available information regarding the adjacent buildings (D&T Tower, Northwest Tower, Rosa Pavilion and Booker building) is provided in the following sections.

D&T Tower and Northwest Tower

The D&T Tower is a 5-story medical building located immediately east of the site. The Northwest Tower is a 1-story to 6-story medical building located north of the site. We reviewed the foundation drawings titled "Additions and Renovations" prepared by DiStasio & Van Buren, Inc dated 26 June 2006. Copies of the drawings are provided in Attachment C.

Based on the drawings, the design top of ground floor slabs is at el 37.48. The drawings indicate both towers are supported by deep foundations. The columns are supported on minimum 16-inch-diameter auger cast-in-place concrete piles (ACIP). The ACIPs have a 30-ft-long sleeve from the pile cap and have 100 ton or 75 ton capacities. The ACIPs have a minimum longitudinal reinforcement requirement of 4 #5 bars with minimum transverse reinforcement of #3 bars at 4 inches for the upper 4 feet and #3 bars at 6 inches for the remainder of the reinforcing. The

structural slab is supported on timber piles with a minimum tip diameter of 8 inches. The timber piles have a 25 ton capacity.

The tops of the pile caps immediately north of the proposed building (Northwest Tower) are reportedly at el 35.48. The tops of the pile caps immediately east of the proposed building (D&T Tower) are reportedly el 35.48.

Rosa Pavilion and Booker Building

The "Additions and Renovations" drawings prepared by DiStasio & Van Buren, Inc dated 26 June 2006 also provide information on the Rosa Pavilion and Booker buildings, which were existing at the time. The Rosa Pavilion building is a 2-story medical building that will be demolished as part of the proposed development. The Booker building is a 3-story medical building immediately south of the eastern portion of the proposed building.

Based on the "Additions and Renovations" drawings, the Rosa Pavilion and Booker building are supported by shallow foundations. The finished floor elevation of the Rosa Pavilion is reportedly at approximately el 34.5.

Landfill Exhibit

We reviewed the landfill exhibit titled "Exhibit B-1B – Restricted Area Engineering Controls" dated 2/7/14 prepared by the Elm Group. The exhibit indicates that the northwestern portion of the JSUMC campus is located within an environmentally restricted area. This restricted area includes the northeastern portion of the Care Tower building site. Based on discussions with the Elm Group, we understand the restricted area consists of a landfill containing a soil matrix mixed with debris and the landfill typically extends to depths of approximately 9 ft below existing surface grade, and to a maximum depth of 13 ft below existing surface grade. A copy of the landfill exhibit is provided in Attachment D.

SUBSURFACE INVESTIGATION

A preliminary geotechnical subsurface investigation was performed at the site in November 2024 under Langan supervision. The geotechnical subsurface investigation for this study consisted of drilling 4 borings. Borings were performed in areas that were accessible at the time of our investigation. No borings were drilled within the reported landfill limits during this preliminary investigation.

The locations of all borings are shown in Figure 5. Logs of all borings are included in Appendix A.

Borings

Borings are identified as CT-1 through CT-4 and were performed between 14 November and 18 November 2024. Borings extended 52 ft to 102 ft below the ground surface. Borings were drilled by Craig Geotechnical Drilling, Co., Inc. (Craig) using a truck-mounted drill rig with mud-rotary drilling techniques.

Soil samples were obtained and Standard Penetration Tests (SPTs) were performed using a standard 2-inch outside-diameter split-spoon sampler driven by a 140-lb safety or automatic hammer in accordance with ASTM D1586. Sampling and SPTs were performed continuously in the upper 12 ft and through landfill materials, where present, and at 5-ft intervals thereafter. The boreholes were backfilled with soil cuttings and grouted using bentonite, and asphalt surfaces were patched with cold-patch asphalt.

The borings were completed under the full-time observation of a field engineer from our office and under the direct supervision of our project Professional Engineer. Our field engineer maintained logs of the explorations, classified soil encountered, and obtained representative material samples.

The soil samples were classified in accordance with the Unified Soil Classification System (USCS). The soil samples were sent to our storage facility in Whippany, NJ for further classification and laboratory testing. The samples will be stored for 12 months from the date of investigation.

GEOTECHNICAL LABORATORY TESTING

Soil samples from the Langan investigation were classified and examined in the field by a Langan geotechnical engineer. Representative samples were selected and tested to determine engineering properties and to confirm field classifications. The laboratory test results from the investigation are included in Appendix B. Laboratory testing included the following:

- Natural water content determinations (ASTM D2216)
- Grain Size Analyses (ASTM D1140)
- Atterberg Limit Determinations (ASTM D4318)
- Organic Content Determinations (ASTM D2974)
- Consolidation Tests (ASTM D2435)
- Unconfined Compressive Strength Tests (ASTM D2166)

SUBSURFACE CONDITIONS

Based on the results of the borings performed for this study, the site subsurface conditions consist of surficial materials and fill overlying upper sand, clay and lower sand layers. Simplified, graphical presentations of the subsurface conditions encountered within the borings are presented in Table 1 and a generalized subsurface profile is provided in Figure 6. The following sections describe the encountered strata and observed groundwater conditions.

Surficial Materials and Fill

An 8-inch-thick layer of asphalt was encountered at the surfaces of borings CT-1 and CT-2. A 6-inch-thick layer of topsoil was encountered at the surfaces of borings CT-3 and CT-4.

In all borings, the asphalt or topsoil was underlain by a 5-ft-thick layer of fill generally consisting of brown to light gray fine to coarse sand with varying amounts of silt and gravel.

Landfill Materials: No landfill materials were encountered within the borings performed for this preliminary investigation. Landfill materials consisting of soil mixed with debris are expected to be encountered in the northwestern portion of the proposed building footprint, which was inaccessible at the time of the investigation.

No SPT N-values were recorded in the fill layer. The borings were hand-augered through the fill layer.

Upper Sand

An upper sand layer was encountered immediately below the fill layer in all borings and was typically described as gray to brown fine to coarse sand with varying amounts of silt, clay and gravel. The upper sand was first encountered at depths of 5 ft below existing surface grade, or at el 33.5 to el 34.5.

In borings CT-1 and CT-2, a 2-ft-thick silt layer was encountered interbedded within the upper sand. In borings CT-1, CT-2 and CT-3, 2-ft-thick to 10-ft-thick clay layers were also encountered interbedded within the upper sand. The interbedded clay was found to be stiff to very stiff as evidenced by SPT N-values ranging from 13 bpf to 30 bpf and unconfined compressive strengths (q_u values) as measured by the field pocket penetrometer varying from 3,000 pounds per square foot (psf) to 5,000 psf.

The upper sand was typically found to be very loose to very dense as evidenced by SPT N-values typically ranging from 3 bpf to 79 bpf (average of 23 bpf).

The upper sand is classified as SM or SP per USCS. The interbedded silt and clay were classified as ML and CL, respectively, per USCS. Typical index properties determined from laboratory testing performed on samples from the upper sand layer are provided in the following table.

Results of Identification Tests (Upper Sand)

Boring	Sample	Depth (ft)	Natural Moisture Content (%)	Fines Content (%)
CT-1	S-2	7-9	30.3	67.0
CT-2	S-6	11-13	24.1	49.0

Clay

A gray to greenish gray clay layer with varying amounts of silt and sand was encountered immediately below the upper sand in all borings. The clay was first encountered at a depth of 50 ft below existing surface grade, corresponding to el -10.5 to el -11.5. In boring CT-1, the sample at 60 ft was described as clayey sand.

The clay was typically found to be very stiff to hard as evidenced by SPT N-values typically ranging from 21 bpf to 29 bpf. The unconfined compressive strengths (q_u values) as measured by the field pocket penetrometer varied typically from 5,000 pounds per square foot (psf) to 8,000 psf, indicating stiff to very stiff consistency.

The clay classified as CL or CH per USCS. Typical index properties and consolidation properties determined from laboratory testing performed on samples from the clay layer are provided in the following tables.

Results of Identification Tests (Clay/Clayey Sand)

Boring	Sample	Depth (ft)	Natural Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Fines Content (%)	Organic Content (%)
CT-1	S-15	60-62	33.6	67	18	49	48.9	-
CT-2	S-7	15-17	33.7	37	22	15	73.3	4.1
CT-3	UD-1	52-54	32.1	81	19	62	-	1.0
CT-4	S-13	40-42	40.4	87	25	62	-	4.0

Consolidation Tests (Clay)

Boring	Sample	Depth (ft)	Initial Void Ratio	Compression Index, Cc	Recompression Index, Cr	Estimated Preconsolidation Pressure (tsf)
CT-3	UD-1	52-54	0.963	0.457	0.090	14.2

Strength Tests (Clay)

Boring	Sample	Depth (feet)	Unconfined Compressive Strength, q_u (psf)
CT-3	UD-1	52-54	2,200

Lower Sand

A lower sand layer was encountered below the clay layer in deep boring CT-1. The lower sand was first encountered at a depth of 75 ft below existing surface grade, or at el -36.5.

The lower sand was typically described as greenish gray silty sand with varying amounts of clay. The sand was typically found to be dense to very dense as evidenced by SPT N-values typically ranging from 42 bpf to 76 bpf. The lower sand is classified as SM per USCS. Typical index properties determined from laboratory testing performed on one sample from the lower sand layer are provided in the following table.

Results of Identification Tests (Lower Sand)

Boring	Sample	Depth (ft)	Natural Moisture Content (%)	Fines Content (%)
CT-1	S-20	85-87	29.6	41.1

Groundwater

During our investigation, groundwater levels were inferred based on the moisture content of the retrieved soil samples. The groundwater levels typically ranged from 5 ft to 9 ft below surface grades, or between el 29.5 and el 34.5. Groundwater levels are subject to seasonal fluctuations.

Corrosion Test Results

The results of the corrosion testing of composited soil samples obtained from the upper 5 ft from borings CT-1 and CT-4 are shown in the table below.

Corrosion Test Results

Parameter	CT-1 (0 ft to 5 ft)	CT-4 (0 ft to 5 ft)
pH	5.9	11.0
Resistivity	1,980 Ω-cm	2,740 Ω-cm
Redox Potential	324 mV	366 mV
Chlorides	139 ppm	131 ppm
Sulfide	6.0 ppm	6.3 ppm
Sulfate	422 ppm	383 ppm

EVALUATION AND PRELIMINARY RECOMMENDATIONS

Our preliminary geotechnical recommendations for demolition, site preparation, earthwork, building foundation design, and other geotechnical aspects of construction are given in the following paragraphs.

Seismicity

The 2021 International Building Code NJ Edition (Building Code) assigns a seismic site class based on the type, thickness and average properties in the top 100 ft of bearing stratum. Seismic site-class values are given in accordance with Chapter 20 of ASCE 7-16 per the Building Code.

The soils underlying the proposed structure typically consist of upper sand, clay and lower sand. The preliminary seismic design parameters are summarized in the following table.

Seismic Parameters	Value at short period	Value at 1-second period
Mapped Spectral Response Acceleration *(in terms of gravitational acceleration, g)*	S_S= 0.224g	S_1= 0.058g
Seismic Site Class	Class D (stiff soil)	
Seismic Site Coefficients	F_A = 1.6	F_V = 2.4
Design spectral response acceleration, S_{DS}=2/3xFxS	S_{DS}=0.239g	S_{D1}=0.083g
Risk Category	IV	
Seismic Design Category	C	C

Liquefaction Potential

The Building Code requires an evaluation of the liquefaction potential of non-cohesive soils below the groundwater level and up to 50 ft below the ground surface. Soils below the groundwater level generally consisted of cohesive soils or medium dense to dense sand. Therefore, liquefaction potential is not a concern and does not need to be taken into account in the design.

Foundation System

The existing fill materials and anticipated landfill materials are not suitable for bearing support of conventional shallow foundations. The underlying upper sand and clay, in their present condition, also cannot provide adequate bearing support for conventional shallow foundations based on the proposed structure loads, since bearing in these upper sand and clay materials would result in excessive foundation settlements.

Therefore, the proposed Care Tower building can be supported on deep foundations consisting of pile foundations to transfer the loads to the lower medium dense to very dense sand.

The proposed lowest floor slab can be supported by the existing fill materials following the proofrolling/compaction subgrade preparation is performed as subsequently recommended herein, or after new fill materials are placed and compacted in accordance with the "Engineered Fill" section below; pile support is not required beneath the slab.

Design and Construction Guidelines for Piles

We recommend that the proposed building be supported on auger cast-in-place (ACIP) piles bearing in the lower sand. ACIP piles should be used to support the proposed building columns and walls. Preliminary pile design details for the ACIP piles are provided in the table below.

Preliminary Pile Recommendations

Pile type	16-inch-diameter auger cast-in-place pile (ACIP)
Minimum upper cage reinforcement **(minimum 1/3 the total pile length)**	Longitudinal Bars 4 No. 11 bars ASTM 615 threadbar, Fy=60 ksi (or equivalent steel casing)
	Lateral reinforcement #4 tie at 6 inches on centers (o.c.)
Additional Reinforcement (full length of pile)	1 No. 14 bar ASTM 615 threadbar, Fy=60 ksi
Concrete or cement grout 28-day compressive strength	6,000 psi
Bearing material	Lower sand below el -40
Anticipated pile length	Between 75 feet and 100 feet from cut-off Minimum tip elevation at el -40
Net allowable axial compressive load	200 kips (100 tons)

Further details for the pile options (i.e. allowable lateral, uplift and center-to-center spacing) will be provided in the final geotechnical report once the loads and column spacing for the building are finalized and a final geotechnical subsurface investigation has been performed.

Where practical, it is ideal to support an individual column with at least two ACIP piles (rather than one large capacity ACIP pile) for redundancy and to minimize the effects of eccentricity that could create significant additional stresses, especially in the uncased sections.

Pile Load Tests

Static compressive load tests should be performed in accordance with ASTM D1143. Lateral load capacities for free head conditions should be substantiated by lateral load tests performed in accordance with ASTM D3966.

Use isolation casings and instrumentation to deduct the fill and landfill side resistance. The test piles should be instrumented with strain gages to determine load distribution along the pile length to estimate skin resistance and tip resistance. If isolation casing is not utilized, the maximum test load should be increased accordingly.

Obstructions

Portions of the site are within the existing landfill which contains debris. The eastern portion of the site is within the existing Rosa Pavilion building footprint. Obstructions may exist that may create difficulties for pile installation at relatively shallow depths. Proper measures such as pre-excavating (or pre-drilling) may be required to remove these obstructions and to prevent damage to the installation equipment. The contractor should assume that these measures may be required for installation of some piles.

Settlement Estimates

Total settlements at columns/walls and differential settlements between adjacent columns/walls are estimated to be less than 1 inch and 0.5 inch, respectively.

Special Inspection

A qualified geotechnical engineer, experienced in this type of work, should inspect pile installation operations and should certify as-installed pile capacities.

Ground Floor Slab (Lowest Floor Slab)

The ground floor of the proposed Care Tower Building will match the existing D&T Tower floor slab elevation at approximately el 37.5 and will require minimal site grading. The ground floor slab can be designed as slab-on-grade construction using a design modulus of subgrade reaction of 125 pounds per cubic inch (pci) provided that the subgrade is adequately prepared and improved as described herein.

Stripping and Buried Rigid Obstructions

All surficial materials (asphalt, concrete) and deleterious materials on the surface (timber, metal, garbage) should be removed entirely from the proposed building footprint. Buried rigid obstructions (walls, foundations, pipes, slabs) if encountered, should be removed to at least 3 ft below the base of the proposed slab to prevent rigid spots.

Subgrade Preparation

Once the site grading and stripping are performed, the exposed subgrade should be proofrolled using a heavy smooth drum roller in accordance with the "Proofrolling" section of this report prior to placement of fill and bedding layers. All backfilling and compaction should be performed in accordance with the requirements of the "Backfilling and Compaction" section below.

Vapor Barrier and Bedding Layer

Once the subgrade is prepared and improved as described above, a 6-inch-thick layer of ¾-inch natural crushed stone should be placed immediately below the slab as a bedding layer, which

will also serve as a capillary break. A plastic sheet vapor barrier should also be installed beneath the slab. The position of the vapor barrier should be chosen by the structural engineer in accordance with the latest ACI guidelines. The vapor barrier should not be less than 15-mil-thick and should conform to ASTM E 1745 Class A requirements. The vapor barrier and bedding layer should be coordinated with the environmental consultant.

Special Inspections

Slab bearing areas must be inspected and approved by a qualified geotechnical engineer prior to steel reinforcement or concrete placement. Any soft, loose, or unsuitable soils identified by the inspecting geotechnical engineer during proof-rolling should be removed and replaced with approved, compacted fill.

Joints

Construction and/or saw cut joints should be provided as necessary for crack control.

Permanent Groundwater Control

The proposed lowest floor will be at el 37.5. The proposed lowest floor will also be approximately 3 ft above the highest measured groundwater level at approximately el 34.5. If any deep pits are proposed extending below the lowest floor slab, they should be waterproofed and designed to resist hydrostatic pressures.

Waterproofing for Deep Pits

Deep pits extending below the lowest floor slab should be designed as a waterproofed structures to resist unbalanced hydrostatic uplift pressures (uplift and lateral) and the waterproofed below-grade walls and base slabs should be designed to resist associated hydrostatic pressures. At a minimum, a 6-inch-thick layer of ¾-inch natural crushed stone should be placed immediately below the base slab as a bedding layer. The base slab will need to be properly reinforced and thickened to resist hydrostatic uplift pressures.

Waterproofing: The exterior sides of the below-grade pit walls and the bottom of the pit base slab need to be waterproofed. The recommended waterproofing product for the slab is a pre-applied, positive-side composite waterproofing membrane such as Preprufe 300R Plus manufactured by Grace Construction Products (Grace) or equivalent. We recommend that a 2-inch-thick concrete mat (mud mat) be poured over the slab subgrade to ease the installation of the membrane beneath the base slab.

The below-grade walls that are constructed as single-face walls should be waterproofed using a pre-applied, positive-side, composite waterproofing membrane such as Preprufe 160R Plus

manufactured by Grace. The installation of waterproofing products should be performed in accordance with the manufacturer's recommendations.

Prevention of cracking is important for the performance of the specified waterproofing product (Preprufe 160 and 300R), which bonds to the concrete during the curing process. Appropriate measures (i.e. additional reinforcing, curing procedures, saw-cutting) should be taken in the design and construction of the slab to minimize cracking, which can significantly reduce the effectiveness of the waterproofing.

Observations During Construction: Groundwater levels should be monitored during the excavation phase of the project to confirm that the design water level is consistent with the actual field conditions. If variations are observed, we should be notified immediately.

Demolition and Site Preparation

Prior to commencement of grading or fill placement, any miscellaneous trash, debris, or other unsuitable materials should be removed from the site. All debris should be properly disposed off-site in accordance with applicable regulations.

Below are our recommendations for demolition of the Rosa Pavilion building, site utilities, and other site features:

- The existing building should be completely demolished.
- Existing concrete floor slabs and foundations should be completely removed.
- Any active existing utilities that are encountered in new building footprint areas should be re-routed.
- Utilities associated with the former development and designated for removal should be completely removed within the proposed building footprint.
- Existing utilities located outside the proposed building footprint should be removed or abandoned in-place by complete filling with grout.
- Excavations made to remove foundation elements or utilities should be backfilled with approved compacted fill as discussed herein.
- From a geotechnical perspective, concrete from the site can be crushed and reused as fill material.
- Any existing asphalt or concrete pavement and concrete walkways that are not part of the final design layout should be demolished in their entirety.
- Existing asphalt pavement designated for removal can be milled/broken and stockpiled for re-use as pavement subbase in proposed pavement areas.

All clearing and stripping activities should be performed in strict accordance with the approved

soil erosion and sediment control plan prepared for the project. All site demolition and site preparation work should be performed in accordance with any environmental regulations and requirements established for the site as well as all Local, State, and Federal regulations. Dust control measures should be implemented during construction to limit the generation of airborne particulates.

All work should be performed so as not to adversely impact the existing and neighboring buildings, off-site structures, or utilities. Protection of these elements should be provided as necessary during the course of all construction activities at the site.

Subgrade Preparation

After performing the aforementioned site preparation work, and prior to constructing finished surfaces in on-grade supported areas (building slabs, pavement, and sidewalks), all site soil within the proposed development areas should be proofrolled in accordance with the "Proofrolling" section below.

If subgrade areas become wet and disturbed, the surficial soils may no longer be suitable for use in fill placement unless sufficiently dried. Should soft or unsuitable subgrade soils be observed as identified by the inspecting Geotechnical Engineer during construction and sufficient time to dry the material is not feasible, these materials should be excavated and replaced with approved compacted backfill.

The Contractor's ability to successfully work the site soils, combined with the weather conditions and the time of year during the site preparation and filling phases of construction, will have a significant impact on timely project completion. Care should be taken to prevent disturbance of the proof-rolled areas and softening of these materials prior to finished construction. At a minimum, all subgrade areas should be temporarily sloped and sealed by rolling with a smooth drum roller at the end of each working day, as necessary, so as to maximize surface water runoff, and minimize potential ponding and infiltration.

For slab and pavement areas, the aggregate subbase material can be placed as soon as practical upon completing site grading and subgrade preparation work as a protective layer. Prior to floor slab construction, this aggregate subbase layer will have to be repaired, re-graded, and re-compacted.

Proofrolling

Proofrolling of soil subgrades within the proposed building footprint and in pavement areas should be performed after removal of surficial materials scheduled for removal and removal of deleterious materials on the surface. Proofrolling can be achieved by a minimum of 6 overlapping passes of a heavy vibratory drum compactor having a static drum weight of at least 8 tons.

Proofrolling should be performed in overlapping passes in both directions (perpendicular to each other).

Any areas exhibiting evidence of poor subgrade, such as rutting or weaving beneath the proofrolling equipment, or containing deleterious materials, should be removed to competent material and replaced with compacted structural fill. Requirements for compacted fill and its placement should be in accordance with the "Engineered Fill" section below.

Excavation and Support of Excavation (SOE)

Typical excavations for pile caps are anticipated to extend approximately 3 ft to 5 ft below the existing surface grades. The excavations can be performed using conventional earthwork equipment.

Open-cut excavations seem feasible throughout the site. Excavation sides should be sloped, benched or braced properly in accordance with OSHA guidelines. Open-cut excavations, where feasible, should consist of stable slopes satisfying OSHA.

The D&T tower to the north and east of the proposed building are reportedly pile supported. The Booker building to the south of the proposed building is reportedly supported on shallow foundations.

No excavations should be performed below the existing hospital building foundations unless adequate shoring/bracing or underpinning is installed.

Temporary excavation stability is a function of several factors including the presence of groundwater, the type and density of the various soil strata, the depth of excavation, surcharge loadings adjacent to the excavation, and the length of time and weather conditions while the excavation remains open. Sidewall instability should be expected when groundwater seepage is encountered and in areas of loose sandy soils, if any.

All excavations should be properly sloped and/or braced in conformance with applicable OSHA regulations including, but not limited to, temporary shoring, utilizing trench boxes and/or proper benching. The Contractor should be responsible for maintaining the stability of the soil excavations.

Engineered Fill

<u>Reuse of Existing On-site Soils</u>

The on-site granular soils having a maximum particle size of 6 inches in diameter can be used as compacted fill to raise grades or backfill foundation and utility excavations. The use of larger aggregate should only be done as approved by a qualified geotechnical engineer based on inspection of conditions encountered during construction.

Some of the on-site soils have a relatively high percentage of fines and are expected to be difficult to handle, place, and compact when they become excessively wet. The Contractor should make provisions to dry portions of the excavated material such as by discing/air drying and soil stabilization as necessary, prior to compaction to an acceptable moisture content as determined by the Geotechnical Engineer.

Excavated materials which are at acceptable moisture contents should be reused as fill as soon as possible to minimize exposure to weather. Stockpiled materials that are planned for reuse should be protected or sealed by the Contractor to keep the materials from becoming wet.

Reuse of Crushed Demolition Debris

From a geotechnical perspective, demolished concrete/masonry debris free of reinforcing steel and other deleterious materials can be processed and reused as compacted fill at the site. These materials should be crushed into a well-graded mixture having a maximum particle size of 4 inches.

Crushed concrete used as pavement or floor slab subbase should be further processed into a well-graded material having a maximum particle size of 2 inches.

The reuse of any on-site materials should be performed in accordance with any established environmental requirements for the site, subsequent to environmental testing of these materials and acceptance by the project environmental consultant.

Reuse of Milled Asphalt

Any existing asphalt designated for removal can be milled/broken and stockpiled for reuse as pavement subbase in proposed pavement areas, subject to any environmental requirements for reuse of materials at the site. Removed asphalt that will be reused should be broken into a well-graded mixture with pieces having dimensions less than 2 inches in any direction. The Contractor should provide adequate dust control during the milling process. The reuse of asphalt millings at the site should also be reviewed and approved by the project environmental consultant.

Imported Fill

Imported fill should consist of a relatively well-graded mixture of sand and gravel with not more than 15 percent (by weight) finer than the No. 200 sieve. The use of any imported fill containing a higher percentage of fines would need to be evaluated by a qualified geotechnical engineer during construction.

Suitable fill should be free of organics and other deleterious materials. The fill should be environmentally clean. "Clean fill" is defined as material to be used in a remedial action that meets all soil remediation standards, meets site-specific alternative standards or site-specific interim standards, does not contain extraneous debris or solid waste, and does not contain free liquids.

This also includes any material that meets all criteria or action levels for contaminants without standards, available on the New Jersey Department of Environmental Protection's website at www.nj.gov/dep/srp.

Grain size distribution and Modified Proctor compaction tests (ASTM D1557) should be done on representative samples of the backfill and imported fill material proposed by the Contractor. Imported fill should be placed in accordance with the above-described procedure for on-site soils used as compacted fill.

Fill Placement and Compaction

Structural fill (i.e. beneath the building and pavement areas) should be placed in uniform lifts and compacted to at least 95 percent of the material's maximum dry density as determined by the Modified Proctor Compaction Test (ASTM D1557). Fill placed in landscape areas should be compacted to at least 92 percent of the material's maximum dry density as determined by the Modified Proctor Compaction Test (ASTM D1557). On-site soils and imported select fill should be placed in maximum 12-inch-thick loose lifts and compacted using a smooth drum vibratory roller having a minimum static drum weight of 5 tons.

Smaller compaction equipment (i.e. walk-behind trench roller or jumping jack compactor) and thinner lifts (maximum 6 inches to 8 inches thick) should be used in areas of limited maneuverability.

The water content at the time of compaction should be within 3 percentage points of the optimum water content. All fill placement should be subject to observation and testing by a qualified geotechnical engineer.

No fill material should be placed on areas where free water is standing, on frozen subgrade areas, or on surfaces which have not been approved by a qualified geotechnical engineer.

Utilities

Excavations will be required for the installation of proposed utilities and associated structures. All excavations should be properly sloped and/or braced in conformance with applicable OSHA regulations including, but not limited to, temporary shoring, utilizing trench boxes and/or proper benching.

Prior to construction, we recommend field locating any existing utilities that are to remain or that must be temporarily maintained during construction.

We expect site excavations for proposed utilities to be constructed in existing fill materials. Exposed utility trenches in soil should be proof-rolled with at least three (3) overlapping coverages of a double-drum walk-behind vibratory compactor such as a Wacker RT 82-SC or equivalent. Any soft or unstable areas identified by the proof-rolling should be removed and replaced with

compacted fill. Backfill in utility excavations should meet the previously discussed requirements for engineered fill, with fill placement and compaction performed as previously discussed.

If unsuitable bearing material is encountered at the proposed utility subgrade elevation, we recommend that 1 ft of over-excavation and replacement with approved bedding material be performed beneath the utility. The actual extent of removal should be determined by a qualified inspecting geotechnical engineer based on the ground conditions encountered at the time of excavation.

We recommend that a minimum 6-inch-thick layer of ¾-inch clean, crushed stone be placed above the soil subgrade as pipe bedding material. The remainder of the trench can be backfilled using approved on-site soils in accordance with the recommendations provided herein.

Acid Producing Soils

The natural soils underlying the anticipated fill materials have the potential to be acid producing if exposed to air, typically during earthwork operations. The potential for exposing acid producing soils requires compliance with the applicable soil erosion and sediment control measures within the municipality where the work is being performed, to prevent acidic storm runoff from impacting areas outside the construction work zone.

Groundwater Control During Construction

Construction dewatering is anticipated to be required for removal of perched and surface runoff water during the foundation and utility excavations. These excavations are anticipated to be above the measured groundwater levels recorded during the investigation. Therefore, dewatering measures consisting of trenching and sump pumping during construction are expected to be necessary to maintain a dry and workable site to control surface water and groundwater.

If deeper excavations are anticipated to extend below the groundwater level, more substantial pumping effort in conjunction with continued maintenance of gravel sumps, seepage control, and erosion protection along the side slopes may be required. We recommend that the sump pits and pumps be installed in advance of proposed excavations in order to facilitate removal of groundwater ahead of time, making excavation easier and cleaner. If groundwater is encountered during the excavation, we recommend that the contractor install temporary perimeter ditches or other subsurface drains to collect or intercept groundwater to facilitate deeper excavation.

Cohesive on-site soils (silt and clay) and on-site sandy soils with significant fine soil particles are sensitive to moisture. Water should not be allowed to pond and sit over soil subgrades. Proper grading, trenching and periodic pumping will be needed to maintain the site in a dry and workable condition. The pumping, handling and discharge of all dewatering effluent should be performed in accordance with all applicable regulations and any environmental requirements for the site.

Corrosion Protection

Laboratory testing of two select soil samples obtained from depths of up to 5 ft were tested for corrosivity to gray and ductile iron pipe and Portland cement. Our evaluation of the corrosion potential is provided in Appendix C.

The tested soil samples were found to contain negligible quantities of sulfates. Therefore, standard Type I Portland Cement concrete is appropriate for use at this site.

The tested soil samples from boring CT-1 was found to be corrosive to gray and ductile iron. To protect ductile/cast iron pipe utilities, we recommend that 1) the existing fill soils not be used as backfill directly against or in contact with the foundations and utilities, and 2) the ductile/cast iron pipe utilities have a minimum of 12 inches of bedding consisting of ¾-inch crushed stone or imported select granular soils and are backfilled with a minimum of 12 inches of ¾-inch crushed stone wrapped entirely in filter fabric such as Mirafi 140N or imported granular soils on the sides and above the pipe. For further corrosion protection, a polyethylene wrap can be placed around the pipes. Alternatively, HDPE may be used for the utilities.

The samples were generally found to be above the critical values for ground aggressiveness. Based on the results of the resistivity and chloride content testing, the upper soils may be aggressive to concrete steel reinforcement where in contact. ACI 318 recommends that below-grade concrete should meet exposure class C2, which requires concrete to have a minimum compressive strength of 5,000 psi and a maximum water cement ratio of 0.4.

Final interpretation of the chemical test results and corrosion protection structural design requirements should be evaluated and determined by the structural engineer. Additional corrosion testing should be performed as part of a final geotechnical subsurface investigation.

Construction Adjacent to Existing Buildings

The existing D&T Tower are reportedly pile-supported. The Booker building is reportedly supported on shallow foundations. We recommend performing test pits at the Booker building foundations nearest the project site following demolition of the Rosa Pavilion building and prior to construction to determine the as-built conditions of the Booker building foundations.

If excavations for the proposed foundations will extend below any existing wall or column foundations, the existing footings should be underpinned to a competent bearing stratum (consisting of natural, undisturbed soil) below the proposed excavation level prior to excavating for the proposed building. No excavation below the existing foundations should be performed prior to installation of underpinning for the adjacent existing building foundations.

Excavations for proposed pile caps below the level of adjacent building foundations and slabs should be done in a manner as to avoid loss of support or undermining of the existing footings, pile caps and slabs.

Protection and Monitoring of Adjacent Structures

Construction activities such as drilling for ACIP are not anticipated to generate vibrations that can adversely affect the surrounding structures. However, the adjacent structures should be adequately protected and monitored during construction. It is possible that some movement or perceived movement may occur during construction. Contract documents should clearly state that the contractor is responsible for the repair of any damage to existing buildings, which are a result of their construction operations.

For this particular project, the structures of interest for monitoring purposes include the Northwest Tower, the D&T Tower and the Booker building. The sections of the structures of interest that are within 75 ft of the site should also be monitored continuously throughout the excavation and foundation construction phases. Monitoring should include periodic measurements of the movement of lateral and vertical control points and vibration monitoring.

Pre-Construction Conditions Documentation

We recommend that a thorough pre-construction conditions documentation of the structures of interest be performed by a qualified professional engineer experienced in such documentation work. The documentation will serve as a reference document to assess conditions prior to, during, and after construction. The documentation should include photographs, sketches, and measurements of ambient vibrations. Crack reference lines and settlement points should be established in advance for monitoring during construction. The documentation would serve as a pictorial and quantitative record for future reference.

ADDITIONAL INVESTIGATION

A limited subsurface investigation was performed to obtain general information regarding the site subsurface soil and groundwater conditions and to develop preliminary geotechnical recommendations that could be conceptually applied to proposed development at the site. No borings were performed within the footprint of the existing Rosa Pavilion building footprint.

Please note that a development-specific comprehensive geotechnical investigation/study must be performed to adequately investigate subsurface conditions in accordance with the Building Code investigation requirements the design of the proposed building for the site is advanced. Preliminary geotechnical recommendations provided in this report should be superseded by those developed as part of the site-specific development study.

CONSTRUCTION DOCUMENTS AND INSPECTION / QUALITY ASSURANCE

Technical specifications addressing deep foundations, earthwork and all other work related to the building foundations and site preparation/construction should be prepared by our firm. In addition, the foundation recommendations given herein should be included in the structural drawings for

the project. Our firm should be provided with and review any Contractor submittals related to foundation work, site preparation, and soil importation for conformance with the recommendations given in this report.

During construction, it is critical that all geotechnical related work be performed under qualified geotechnical engineering inspection/monitoring/testing in order to ensure proper and timely implementation of the recommendations given in this report. We recommend that Langan perform this work to verify proper implementation of our recommendations and to maintain continuity of our responsibility for this project. Our field engineer would be able to immediately address unexpected or unusual conditions that may be encountered and provide remedial recommendations. This work includes: drilled pile installation, site preparation and proof-rolling, compacted fill placement, slab subgrade preparation, pavement subgrade preparation, utility construction and backfill placement, and asphalt paving.

OWNER AND CONTRACTOR OBLIGATIONS

The Contractor is responsible for construction quality control, which includes satisfactorily constructing the foundation system and any associated temporary works to achieve the design intent while not adversely impacting or causing loss of support to neighboring structures. Construction activities that can alter the existing ground conditions such as excavation, fill placement, foundation construction, shoring installation, dewatering, etc. can also potentially induce stresses, vibrations, and movements in nearby structures and utilities, and disturb occupants of nearby structures. Contractors working at the site must ensure that their activities will not adversely affect the performance of the structures and utilities, and will not disturb occupants of nearby structures. Contractors must also take all necessary measures to protect the existing structures during construction. By using this report, the Owner agrees that Langan will not be held responsible for any damage to adjacent structures.

This report presents our preliminary recommendations regarding the geotechnical aspects of design and construction for the proposed Perioperative Critical Care Tower development at the JSUMC campus in Neptune, New Jersey. This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, or by natural events such as floods, earthquakes, slope instability, or groundwater fluctuations.

The preparation and use of this report is based on the condition that the project construction contract between the Owner and their Contractor(s) will include: 1) Langan being added to the Project Wrap and/or Contractor's General Liability insurance as an additional insured, and 2) language specifically stating the Foundation Contractor will defend, indemnify, and hold harmless the Owner and Langan against all claims related to disturbance or damage to adjacent structures or properties.

LIMITATIONS

The conclusions and preliminary recommendations provided in this report are based on subsurface conditions inferred from a limited number of borings, as well as architectural and structural information provided by the project Owner, project architect RSC Architects and the project structural engineer Reuther + Bowen. Recommendations provided are dependent upon one another and no recommendation should be followed independent of the others.

Any proposed changes in structures or their locations should be brought to Langan's attention as soon as possible so that we can determine whether such changes affect our recommendations. Information on subsurface strata and groundwater levels shown on the logs represent conditions encountered only at the locations indicated and at the time of investigation. If different conditions are encountered during construction, they should immediately be brought to Langan's attention for evaluation, as they may affect our recommendations.

This report has been prepared to assist the Owner, architect and structural engineer in the design process and is only applicable to the design of the specific project identified. The information in this report cannot be utilized or depended on by engineers or contractors who are involved in evaluations or designs of facilities (including underpinning, grouting, stabilization, etc.) on adjacent properties which are beyond the limits of that which is the specific subject of this report.

Environmental issues are outside the scope of this study and should be addressed in a separate study by qualified professionals.

LIST OF TABLES

JSUMC - Perioperative Critical Care Tower
Neptune, NJ
101166101

TABLE 1 - SUMMARY OF BORINGS

ELEVATION (NAVD 88)	CT-1	CT-2	CT-3	CT-4
surface elevation	38.5	39.5	38.5	39
total depth (feet)	102	52	56	52
40				
39		ASPHALT		
38	ASPHALT		TOPSOIL	TOPSOIL
37				
36				
35				
34				
33		6		
32	11		9	9
31		5		
30	5		16	16
29		15		
28	13		8	20
27		3		
26	10		18	17
25				
24	12			15
23		13		
22	15		14	34
21			qu = 1.5 tsf	
20				
19				
18		22		
17	14		16	20
16	qu = 1.5 tsf			
15				
14				
13		67		56
12	40		79	
11				
10				
9				
8		33		28
7	34		28	
6				
5				
4				
3		15		29
2	25		18	
1				
0				
-1				
-2		19		
-3	30		27	16
-4	qu = 2.0 tsf			qu = 2.5 tsf
-5				
-6				
-7		27		
-8	35		17	56
-9				
-10				
-11		21		
-12		qu = 3.3 tsf		
-13	24		19	23
-14	qu = 2.8 tsf		qu = 4.0 tsf	
-15			TUBE	
-16				
-17			21	
-18	24			
-19				
-20				
-21				
-22				
-23	21			
-24				
-25				
-26				
-27				
-28	25			
-29	qu = 2.8 tsf			
-30				
-31				
-32				
-33	29			
-34	qu = 2.5 tsf			
-35				
-36				
-37				
-38	44			
-39				
-40				
-41				
-42				
-43	47			
-44				
-45				
-46				
-47				
-48	76			
-49				
-50				
-51				
-52				
-53	76			
-54				
-55				
-56				
-57				
-58	42			
-59				
-60				
-61				
-62				
-63	45			
-64				

COLOR LEGEND
FILL
Silt
Clay
Sand

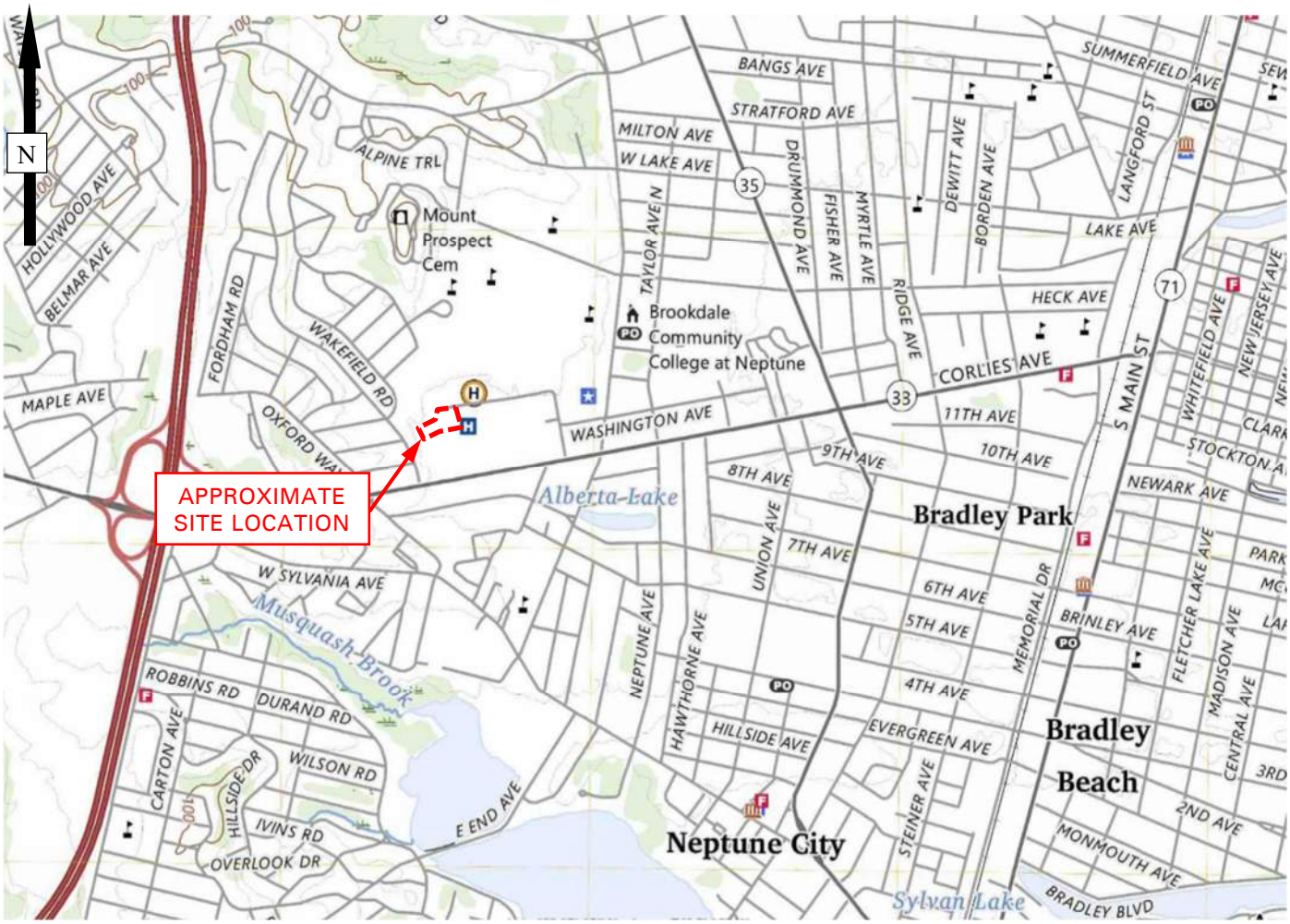
LEGEND

20	SPT N-Value
TUBE	Undisturbed Sample Location
- - - - - - -	Proposed Finished Floor Elevation
▼	Inferred Groundwater Level From Moisture Content of Samples

NOTES

1 Subsurface information provided is generalized and is shown for illustration purposes only.
2 Refer to location plan for actual locations.
3 Refer to logs for actual soil descriptions and details.
4 The N-values tabulated are in blows/ft.

LIST OF FIGURES



Source: United States Geological Survey (USGS) – Asbury Park Quadrangle (2023)

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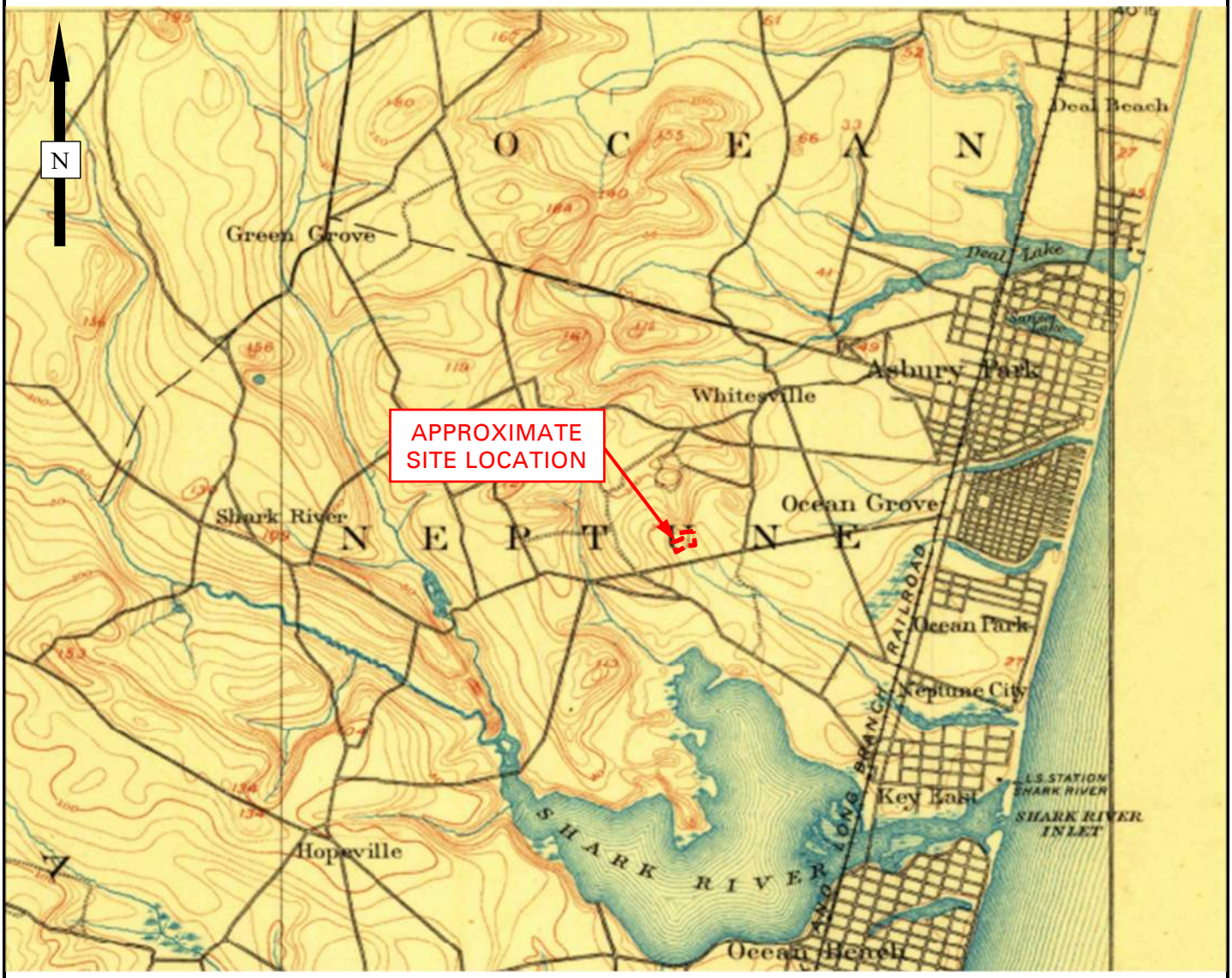
JSUMC – PERIOPERATIVE CRITICAL CARE TOWER

SITE LOCATION MAP

NEPTUNE **NEW JERSEY**

PROJECT NO.	SCALE	DATE	FIGURE
101166101	**N.T.S.**	**1/06/2025**	**1**

\\langan.com\data\PAR\data1\101166101\Project Data_Discipline\Geotechnical\Reports\Care Tower Prelim Rpt\Figures\Figure 1 - Site Location Map JG.docx



Source: United States Geological Survey (USGS) – Asbury Park Quadrangle (1888)

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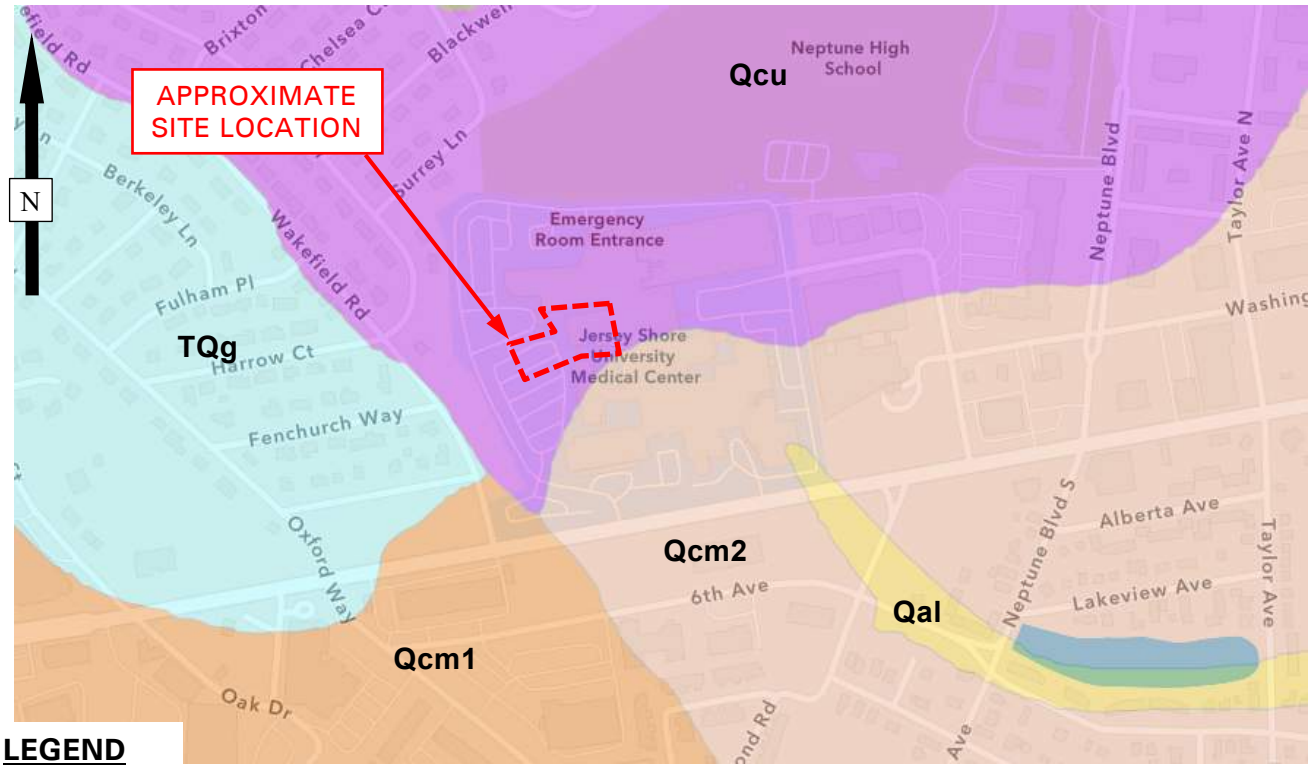
JSUMC – PERIOPERATIVE CRITICAL CARE TOWER

HISTORIC USGS MAP

NEPTUNE **NEW JERSEY**

PROJECT NO.	SCALE	DATE	FIGURE
101166101	**N.T.S.**	**1/06/2025**	**2**



LEGEND

Qcu – Upper Colluvium Formation - Sand, silt, minor clay and pebble gravel; pale brown, yellow, reddish yellow. As much as 20 feet thick.

Qcm1 – Cape May Formation Unit 1 - Sand, minor silt, clay, and pebble gravel; very pale brown, yellow, reddish yellow. As much as 50 feet thick.

Qcm2 – Cape May Formation Unit 2 - Sand, pebble gravel, minor silt, clay, peat, and cobble gravel; very pale brown, yellow, reddish yellow, white, olive yellow, gray. As much as 200 feet thick on the Cape May peninsula, generally less than 50 feet thick elsewhere.

Qal – Alluvium - Sand, gravel, silt, minor clay and peat; reddish brown, yellowish brown, brown, gray. As much as 20 feet thick.

TQg – Upland Gravel Formation - Sand, clayey sand, and pebble gravel, minor silt; yellow to reddish yellow. As much as 20 feet thick.

Source: NJDEP, NJ-GeoWeb interactive maps

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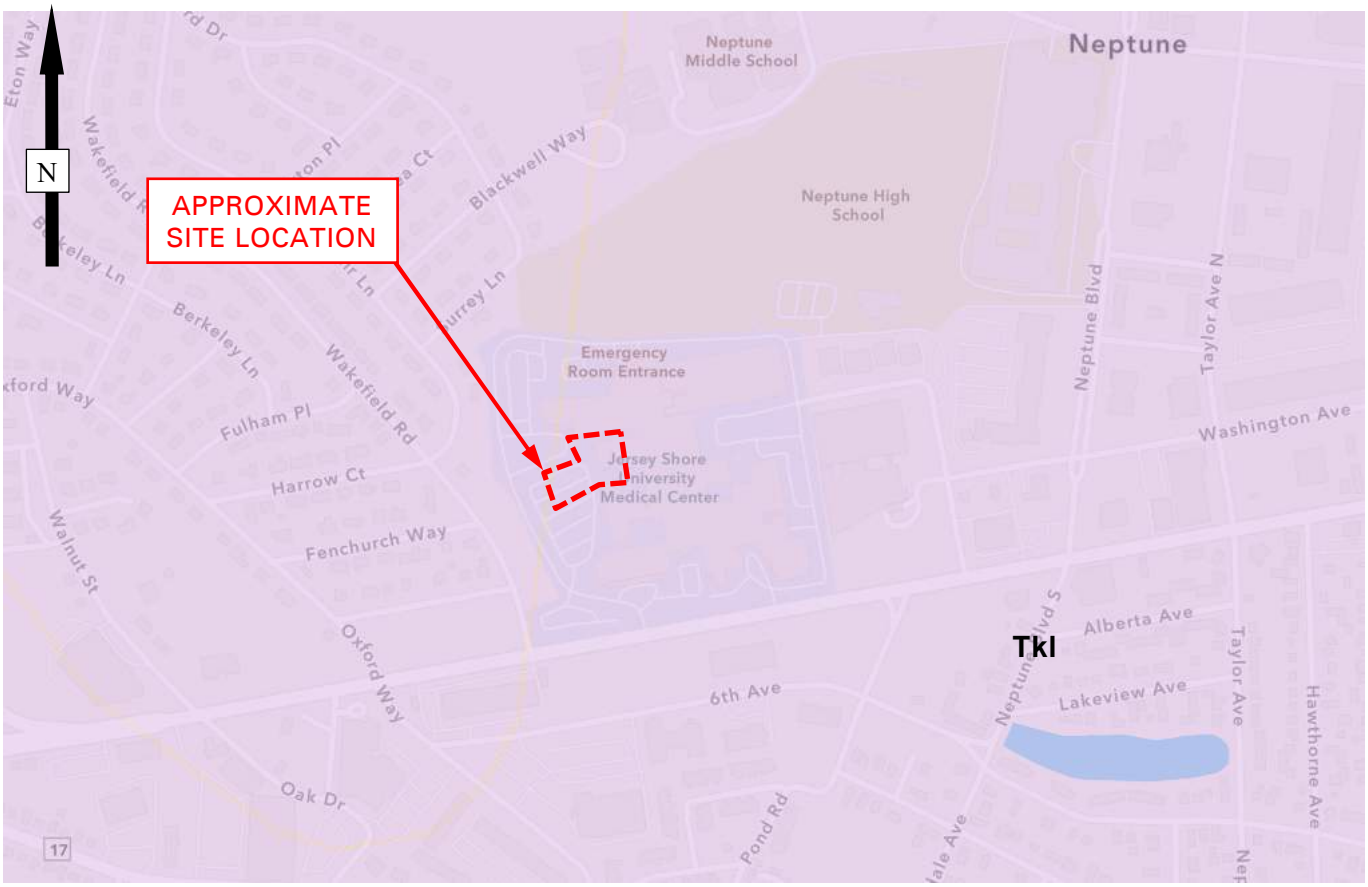
JSUMC – PERIOPERATIVE CRITICAL CARE TOWER

SURFICIAL GEOLOGY MAP

NEPTUNE **NEW JERSEY**

PROJECT NO.	SCALE	DATE	FIGURE
101166101	N.T.S.	1/06/2025	3A



LEGEND

Tkl – Lower Member Kirkwood Formation – quartz sand and clay.

Source: NJDEP, NJ-GeoWeb interactive maps

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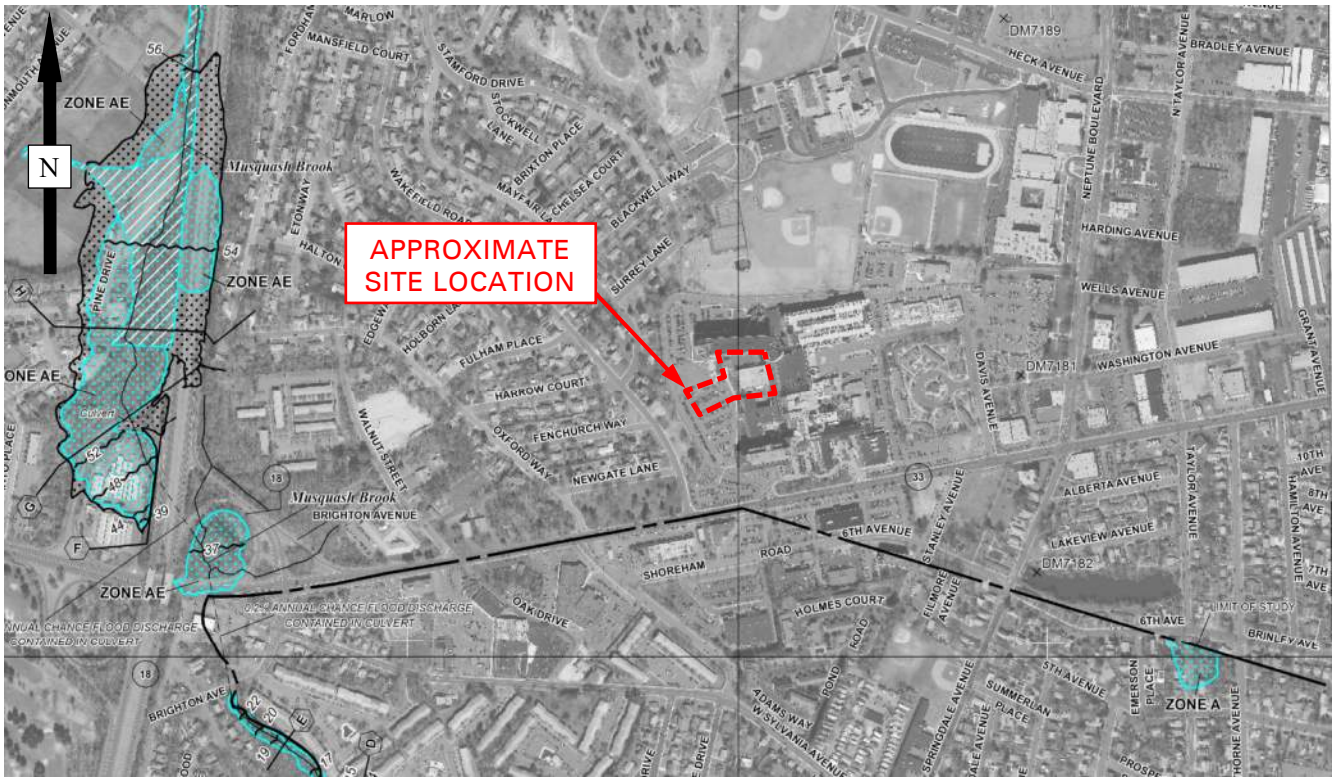
JSUMC – PERIOPERTIVE CRITICAL CARE TOWER

GEOLOGIC MAP

NEPTUNE **NEW JERSEY**

PROJECT NO.	SCALE	DATE	FIGURE
101166101	**N.T.S.**	**1/06/2025**	**3B**

\\langan.com\data\PAR\data1\101166101\Project Data_Discipline\Geotechnical\Reports\Care Tower Prelim Rpt\Figures\Figure 3B - Geologic Map JG CT.docx



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- New Jersey Flood Hazard Area Design Flood (NJFHADF)
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross section line
- Limited detail cross section line
- Transect line
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4276000mN — 1000-meter Universal Transverse Mercator grid values, zone 18
- 600000 FT — 5000-foot grid values: New Jersey State Plane coordinate system (FIPSZONE 2900), Transverse Mercator projection
- DX5510 × — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- ● M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
August 16, 2006

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0333G

FIRM

FLOOD INSURANCE RATE MAP

MONMOUTH COUNTY, NEW JERSEY
(ALL JURISDICTIONS)

PANEL 333 OF 457

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BELMAR, BOROUGH OF	345283	0333	G
NEPTUNE CITY, BOROUGH OF	340316	0333	G
NEPTUNE, TOWNSHIP OF	340317	0333	G
WALL, TOWNSHIP OF	340333	0333	G

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
34025C0333G

MAP REVISED
JUNE 15, 2022

Federal Emergency Management Agency

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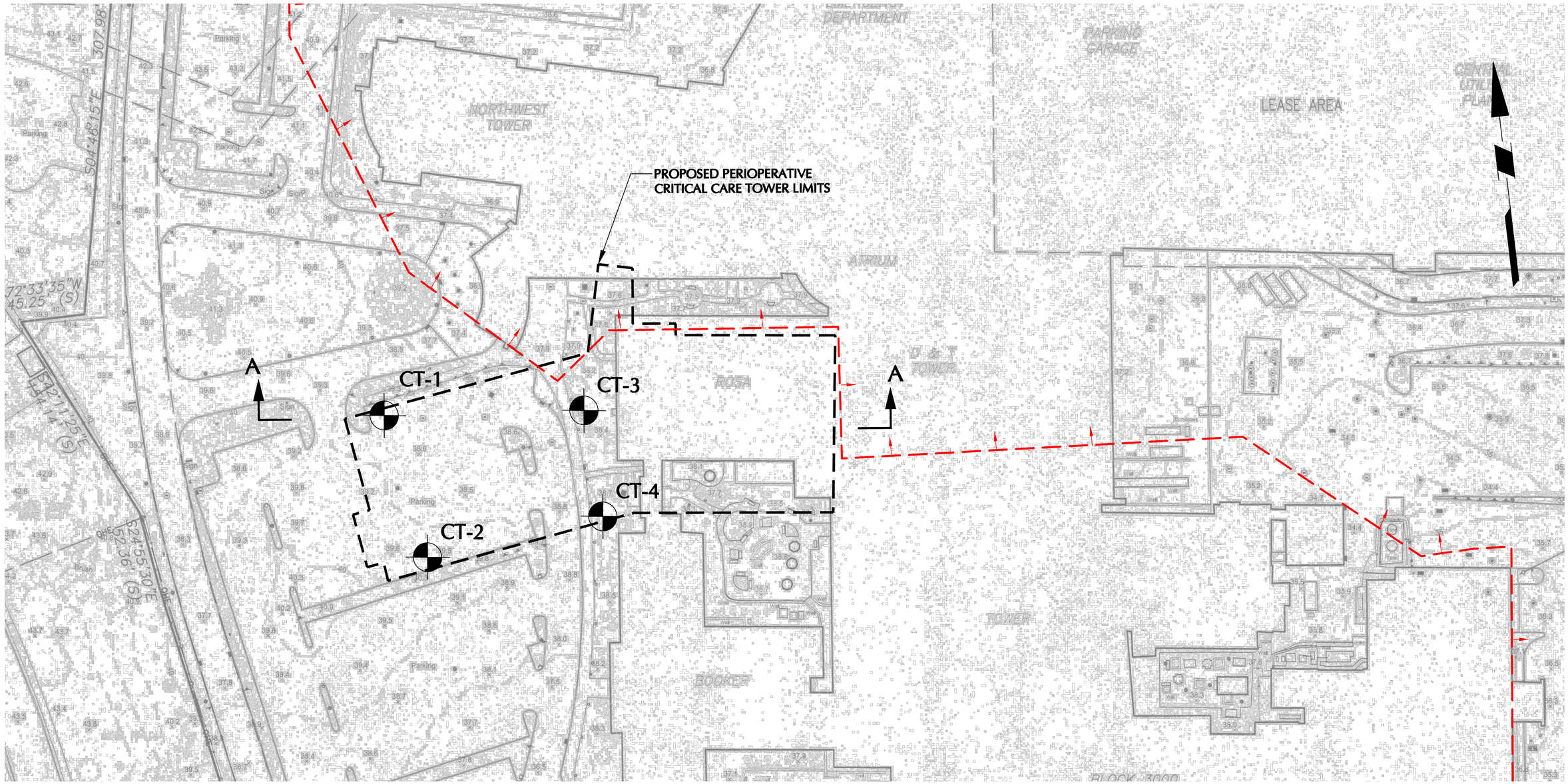
JSUMC – PERIOPERATIVE CRITICAL CARE TOWER

FEMA FLOOD MAP

NEPTUNE **NEW JERSEY**

PROJECT NO.	SCALE	DATE	FIGURE
101166101	N.T.S.	1/06/2025	4

\\langan.com\data\PAR\data1\101166101\Project Data_Discipline\Geotechnical\Reports\Care Tower Prelim Rpt\Figures\Figure 4 - FEMA Flood Map JG CT.docx



NOTES

1. BASE PLAN TAKEN FROM PLAN TITLED "BOUNDARY SURVEY WITH TOPOGRAPHY" DATED 11 JULY 2014 PREPARED BY DEWBERRY ENGINEERING, INC.
2. PROPOSED BUILDING LIMITS TAKEN FROM DRAFT PLAN TITLED "OVERALL SITE PLAN" DATED 2/12/2024 PREPARED BY DEWBERRY ENGINEERS, INC.
3. APPROXIMATE LANDFILL LIMITS TAKEN FROM PLAN TITLED "EXHIBIT B-1B - RESTRICTED AREA ENGINEERING CONTROLS" DATED 7 FEBRUARY 2014 PREPARED BY THE ELM GROUP.
4. BORINGS CT-1 THROUGH CT-4 WERE DRILLED BETWEEN 14 NOVEMBER AND 18 NOVEMBER 2024 BY CRAIG GEOTECHNICAL DRILLING, CO, INC (CRAIG) UNDER THE DIRECT OBSERVATION OF LANGAN.
5. SEE FIGURE 6 FOR SUBSURFACE PROFILES.
6. ALL LOCATIONS, ELEVATIONS, DIMENSIONS AND LIMITS ARE APPROXIMATE AND SHOULD BE VERIFIED IN FIELD.

LEGEND

CT-1 — APPROXIMATE LOCATION OF BORING

A A — SUBSURFACE PROFILE LOCATION

— — — — APPROXIMATE LIMITS OF LANDFILL

50 0 25 50
SCALE: 1 INCH = 50 FEET

LANGAN
Langan Engineering and Environmental Services, LLC.
300 Kimball Drive
Parsippany, NJ 07054
T: 973.560.4900 F: 973.560.4901 www.langan.com
NJ CERTIFICATE OF AUTHORIZATION NO. 24GA27996400

Project
PERIOPERATIVE CRITICAL CARE TOWER
JERSEY SHORE UNIVERSITY MEDICAL CENTER
NEPTUNE NEW JERSEY

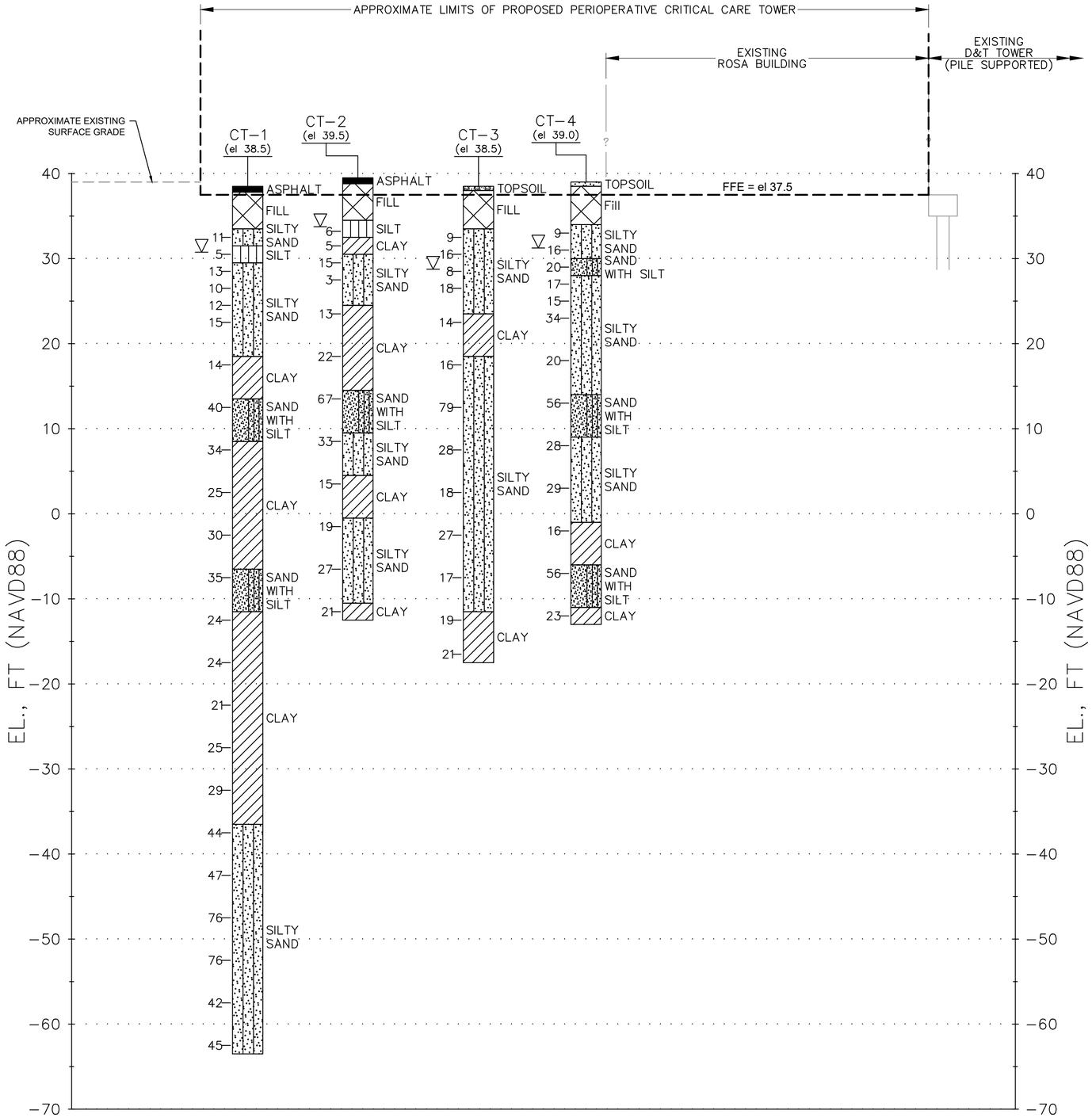
Drawing Title
BORING LOCATION PLAN

Project No. 101166101
Date 1/06/2025
Drawn By VAR
Checked By RDB

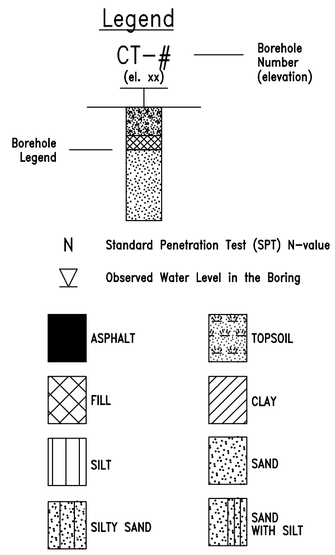
Figure 5
Sheet 0 of 1

Date: 1/6/2025 Time: 11:14 User: vrhodes Style Table: Langan.stb Layout: Care Tower Document Code: PG05-101166101-0205-BL101-0101

LANGAN
Project No. 101166101



PROFILE A-A'



NOTES:

1. THIS PROFILE REPRESENTS A GENERALIZED SOIL CROSS SECTION INTERPRETED FROM WIDELY SPACED BORINGS. SOIL AND GROUNDWATER MAY VARY IN TYPE, LOCATION, ELEVATION, AND ENVIRONMENTAL AND ENGINEERING PROPERTIES BETWEEN POINTS OF EXPLORATION. VARIATIONS IN SUBSURFACE CONDITIONS SHOULD BE EXPECTED BETWEEN BORINGS.
2. ALL BORING LOCATIONS ARE APPROXIMATE.
3. ALL ELEVATIONS ARE APPROXIMATE AND ARE IN REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) UNLESS OTHERWISE NOTED.

10 0 5 10
VERTICAL SCALE: 1" = 10'
HORIZONTAL SCALE: N.T.S.

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Project
PERIOPERATIVE CRITICAL CARE TOWER
JERSEY SHORE UNIVERSITY MEDICAL CENTER
NEPTUNE NEW JERSEY

Drawing Title
SUBSURFACE PROFILE

Project No. 101166101
Date 01/06/2025
Drawn By AC
Checked By VAR

Drawing No. 6

Date: 1/3/2025 Time: 13:32 User: acofrancesco Style Table: Langan.stb Layout: Layout1 Document Code: 101166101-0203-BI201-0102

APPENDIX A

Logs of Borings

LANGAN

Log of Boring **CT-1** Sheet 1 of 6

Project: JSUMC Campus Expansion	Project No.: 101166101
Location: 1945 NJ-33, Neptune City, NJ	Elevation and Datum: Approx. el. 38.5 (NAVD 88)
Drilling Company: Craig Geotechnical Drilling Co, Inc.	Date Started: 11/14/2024 — Date Finished: 11/14/2024
Drilling Equipment: Truck Rig	Completion Depth: 102.0 ft — Rock Depth: Not Encountered
Size and Type of Bit: 3-7/8in Tricone Roller Bit	Number of Samples: Disturbed 25 — Undisturbed 0 — Core 0
Casing Diameter (in): 4" diameter steel — Casing Depth (ft): 9.0	Water Level (ft.): First ▽ 7.0 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Shane Frick
Sampler: 2in OD Split Spoon	Field Engineer: Jonathan Gonzalez
Sampler Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+38.5		0						Started Drilling on 11/14/2024 at 7:54 AM
	+37.8	Asphalt (8-inches thick)							
		Gray medium-fine SAND, trace fine gravel, trace silt (dry) [FILL]	1						Drilled through asphalt to 0.7ft
			2	G-1	GRAB				Hand auger to 5ft
									Take grab sample G-1 from 1ft to 3ft
		Orangish gray Silty fine SAND (moist) [FILL]	3						
			4	G-2	GRAB				Take grab sample G-2 from 3ft to 5ft
	+33.5		5						Take S-1 from 5ft to 7ft
		Orangish light gray Silty medium to fine SAND (moist) [SM]		S-1	SS	14	6 7 4 4	11	
	+31.5		7						Take S-2 from 7ft to 9ft Drive casing to 9ft.
		Brownish tan SILT, some fine sand (wet) [MLS]		S-2	SS	15	2 2 3 3	5	Drill to 9ft , smooth drilling, brown wash
	+29.5		9						Take S-3 from 9ft to 11ft. Push 3-inch spoon.
		Orangish gray Silty fine SAND (wet) [SM]		S-3	SS	10	6 5 8 8	13	
		Gray Silty medium to fine SAND (wet) [SM]	11						Take S-4 from 11ft to 13ft. Push 3-inch spoon.
				S-4	SS	18	5 4 6 7	10	Drill to 13ft, smooth drilling, brown wash
		Gray Silty medium to fine SAND (wet) [SM]	13						Take S-5 from 13ft to 15ft
				S-5	SS	14	7 5 7 6	12	
		Gray Silty medium to fine SAND (wet) [SM]	15				2 7		Take S-6 from 15ft to 17ft
			16						

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Log of Boring **CT-1** Sheet 2 of 6

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 38.5 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+22.5		16	S-6		15	8	15	
			17				10		
			18						
			19						Drill to 20ft, smooth drilling, gray wash
	+18.5		20						Take S-7 from 20ft to 22ft
		Gray Silty CLAY, trace fine sand (wet) [CL]					6		qu = 1.5 tsf (PP)
			21	S-7	SS	23	7	14	
							9		
			22						
			23						
			24						
			25				23		Drill to 25ft, smooth drilling, gray wash
	+13.5	Gray medium to fine SAND, trace silt (wet) [SP-SM]							Take S-8 from 25ft to 27ft
			26	S-8	SS	13	26	40	
			27				33		
			28						
			29						
			30				15		Drill to 30ft, smooth drilling, gray wash
	+8.5	Gray Silty CLAY, trace fine sand (wet) [CL]							Take S-9 from 30ft to 32ft
			31	S-9	SS	22	20	34	
			32				20		
			33						
			34						
			35				14		Drill to 35ft, smooth drilling, gray wash
		Gray Silty CLAY, some fine sand (wet) [CL]							Take S-10 from 35ft to 37ft
			36				12		

LANGAN

Log of Boring **CT-1** Sheet 3 of 6

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 38.5 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+2.5		36	S-10		22	13	25	
			37				13		
			38						
			39						Drill to 40ft, smooth drilling, gray wash
		Gray Silty CLAY, trace fine sand (wet) [CL]	40				5		Take S-11 from 40ft to 42ft qu = 2.0 tsf (PP)
			41	S-11	SS	24	15	30	
			42				15		
			43				10		
			44						
			45						Drill to 45ft, smooth drilling, gray wash
	-6.5	Gray medium to fine SAND, trace silt (wet) [SP-SM]	46	S-12	SS	12	21	35	Take S-12 from 45ft to 47ft
			47				20		
			48				15		
			49				14		
			50						Drill to 50ft, smooth drilling, gray wash
	-11.5	Dark greenish gray Silty CLAY, trace fine sand (wet) [CL]	51	S-13	SS	24	11	24	Take S-13 from 50ft to 52ft qu = 2.8 tsf (PP)
			52				10		
			53				14		
			54				15		
			55						Drill to 55ft, smooth drilling, brown wash
		Dark greenish gray Silty CLAY, trace fine sand (wet) [CL]	56				8		Take S-14 from 55ft to 57ft
							9		

N-Value (Blows/ft) scale: 10 20 30 40

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Log of Boring **CT-1** Sheet 4 of 6

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 38.5 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	-17.5		56	S-14		24	15	24	
			57				17		
			58						
			59						Drill to 60ft, smooth drilling, gray wash
	-21.5		60				7		Take S-15 from 60ft to 62ft
		Dark greenish gray Clayey f-m SAND, some silt (wet) [SC]	61	S-15	SS	23	9 12	21	
			62				15		
			63						
			64						
	-26.5		65				10		Drill to 65ft, smooth drilling, gray wash
		Dark greenish gray Silty CLAY, trace fine sand (wet) [CL]	66	S-16	SS	24	10 15	25	Take S-16 from 65ft to 67ft qu = 2.8 tsf (PP)
			67				15		
			68						
			69						Drill to 70ft, smooth drilling, gray wash
		Dark greenish gray Silty CLAY, trace fine sand (wet) [CL]	70				14		Take S-17 from 70ft to 72ft qu = 2.5 tsf (PP)
			71	S-17	SS	24	15 14	29	
			72				16		
			73						
			74						
	-36.5		75						Drill to 75ft, smooth drilling, gray wash
		Dark greenish gray Silty medium to fine SAND, some clay (wet) [SM]	76				13 21		Take S-18 from 75ft to 77ft

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Log of Boring **CT-1** Sheet 5 of 6

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 38.5 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	-37.5		76	S-18		24	23	44	
			77				27		
			78						
			79						Drill to 80ft, smooth drilling, gray wash
		Dark greenish gray Silty medium to fine SAND, some clay (wet) [SM]	80				15		Take S-19 from 80ft to 82ft
			81	S-19	SS	24	17 30	47	
			82				27		
			83						
			84						Drill to 85ft, smooth drilling, gray wash
		Dark greenish gray Silty medium to fine SAND, trace clay (wet) [SM]	85				30		Take S-20 from 85ft to 87ft
			86	S-20	SS	24	26 50	76	
			87				54		
			88						
			89						Drill to 90ft, smooth drilling, gray wash
		Dark greenish gray Silty medium to fine SAND, trace clay (wet) [SM]	90				30		Take S-21 from 90ft to 92ft
			91	S-21	SS	24	26 50	76	
			92				54		
			93						
			94						Drill to 95ft, smooth drilling, gray wash
		Dark greenish gray Silty medium to fine SAND, some clay (wet) [SM]	95				13		Take S-22 from 95ft to 97ft
			96				15		

N-Value (Blows/ft) scale: 10 20 30 40

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Log of Boring **CT-1** Sheet 6 of 6

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 38.5 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	-57.5		96	S-22		24	27	42	
			97				24		
			98						
			99						Drill to 100ft, smooth drilling, gray wash
		Dark greenish gray Silty medium to fine SAND, some clay (wet) [SM]	100				20		Take S-23 from 100ft to 102ft
			101	S-23	SS	24	23 22	45	
	-63.5		102				20		Stopped drilling on 11/14/2024 at 3:00 PM. Upon completion, borehole backfilled with soil cuttings and hole plug. Asphalt patched to match existing grade.
		End of Boring at 102.0ft.	103						
			104						
			105						
			106						
			107						
			108						
			109						
			110						
			111						
			112						
			113						
			114						
			115						
			116						

LANGAN

Log of Boring **CT-2** Sheet 1 of 3

Project: JSUMC Campus Expansion	Project No.: 101166101
Location: 1945 NJ-33, Neptune City, NJ	Elevation and Datum: Approx. el. 39.5 (NAVD 88)
Drilling Company: Craig Geotechnical Drilling Co, Inc.	Date Started: 11/15/2024 — Date Finished: 11/15/2024
Drilling Equipment: Truck Rig	Completion Depth: 52.0 ft — Rock Depth: Not Encountered
Size and Type of Bit: 3-7/8in Tricone Roller Bit	Number of Samples: Disturbed 14, Undisturbed 0, Core 0
Casing Diameter (in): 4" diameter steel — Casing Depth (ft): 9.0	Water Level (ft.): First ▽ 5.0, Completion ▼ N/A, 24 HR. ▼ N/A
Casing Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Shane Frick
Sampler: 2in OD Split Spoon	Field Engineer: Jonathan Gonzalez
Sampler Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+39.5							10 20 30 40	
		Asphalt (8-inches thick)	0						Started Drilling on 11/15/2024 at 11:05 AM
	+38.8								
		Dark brown to gray Silty medium to fine SAND, trace fine gravel (dry) [FILL]	1						Drilled through asphalt to 1ft Hand auger to 5ft
			2	S-1	GRAB				Take grab sample S-1 from 1ft to 3ft
		Gray Silty fine to medium SAND, trace fine gravel, root fragments with wood pieces (moist) [FILL]	3						Take grab sample S-2 from 3ft to 5ft
			4	S-2	GRAB				
	+34.5	▽	5						Take S-3 from 5ft to 7ft
		Grayish tan to gray SILT, trace fine sand, trace clay (wet) [ML]		S-3	SS	12	3 3 3	6	
	+32.5		7						Take S-4 from 7ft to 9ft
		Grayish light gray Silty CLAY, trace fine sand (wet) [CL]		S-4	SS	17	5 5 WOR 9	5	Drive casing to 9ft.
	+30.5		9						Drill to 9ft, smooth drilling, brown wash
		Light gray Silty medium to fine SAND (wet) [SM]		S-5	SS	13	10 9 6 5	15	Take S-5 from 9ft to 11ft
		Brown to grayish brown Silty fine SAND (wet) [SM]	11	S-6	SS	16	1 1 2 3	3	Take S-6 from 11ft to 13ft using 3-inch spoon.
			13						
			14						Drill to 15ft, smooth drilling, brown wash
	+24.5		15				6 5		Take S-7 from 15ft to 17ft
		Gray Silty CLAY, some fine sand (wet) [CL]	16						

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Log of Boring **CT-2** Sheet 2 of 3

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 39.5 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+23.5		16	S-7		21	8	13	
			17				10		
			18						
			19						Drill to 20ft, smooth drilling, brown wash
		Gray Silty CLAY, some fine sand (wet) [CL]	20				6		Take S-8 from 20ft to 22ft
			21	S-8	SS	24	9 13	22	
			22				13		
			23						
			24						Drill to 25ft, smooth drilling, brown wash
	+14.5		25				46		Take S-9 from 25ft to 27ft
		Gray medium to fine SAND, trace silt [SP-SM]	26	S-9	SS	24	41 26	67	
			27				19		
			28						
			29						Drill to 30ft, smooth drilling, brown wash
	+9.5		30				9		Take S-10 from 30ft to 32ft
		Gray Silty medium to fine SAND, trace clay (wet) [SM]	31	S-10	SS	19	16 17	33	
			32				20		
			33						
			34						Drill to 35ft, smooth drilling, brown wash
	+4.5		35				16		Take S-11 from 35ft to 37ft
		Gray Silty CLAY, some fine sand (wet) [CL]	36				8		

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Log of Boring **CT-2** Sheet 3 of 3

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 39.5 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+3.5		36	S-11		22	7	15	
			37				8		
			38						
			39						Drill to 40ft, smooth drilling, brown wash
	-0.5		40				8		Take S-12 from 40ft to 42ft
		Gray Silty medium to fine SAND, trace clay (wet) [SM]	41	S-12	SS	24	8 11	19	
			42				14		
			43						
			44						
			45				13		Drill to 45ft, smooth drilling, brown wash Take S-13 from 45ft to 47ft
		Gray Silty medium to fine SAND, trace clay (wet) [SM]	46	S-13	SS	14	15 12	27	
			47				9		
			48						
			49						
	-10.5		50				8		Drill to 50ft, smooth drilling, brown wash Take S-14 from 50ft to 52ft qu = 3.3 tsf (PP)
		Greenish brown Silty CLAY, some fine sand (wet) [CL]	51	S-14	SS	24	9 12	21	
	-12.5		52				12		Stopped drilling 11/15/2024 at 2:50 PM. Upon completion, borehole backfilled with soil cuttings and hole plug. Asphalt patched to match existing grade.
		End of Boring at 52.0ft.	53						
			54						
			55						
			56						

N-Value (Blows/ft) scale: 10 20 30 40

LANGAN

Log of Boring **CT-3** Sheet 1 of 3

Project: JSUMC Campus Expansion	Project No.: 101166101
Location: 1945 NJ-33, Neptune City, NJ	Elevation and Datum: Approx. el. 38.5 (NAVD 88)
Drilling Company: Craig Geotechnical Drilling Co, Inc.	Date Started: 11/15/2024 — Date Finished: 11/15/2024
Drilling Equipment: Truck Rig	Completion Depth: 56.0 ft — Rock Depth: Not Encountered
Size and Type of Bit: 3-7/8in Tricone Roller Bit	Number of Samples: Disturbed 15 — Undisturbed 1 — Core 0
Casing Diameter (in): 4" diameter steel — Casing Depth (ft): 9.0	Water Level (ft.): First ▽ 9.0 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Shane Frick
Sampler: 2in OD Split Spoon	Field Engineer: Jonathan Gonzalez
Sampler Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+38.5								
	+38.0	Topsoil (6-inches thick)	0						Started Drilling on 11/15/2024 at 8:21 AM
		Light brown fine to medium SAND, trace silt, trace fine gravel, root fragments (dry) [FILL]	1						Hand auger to 5ft
			2	S-1	GRAB				Take grab sample S-1 from 1ft to 3ft
		Orangish brown Silty fine SAND, trace fine gravel, root fragments (dry) [FILL]	3						
			4	S-2	GRAB				Take grab sample S-2 from 3ft to 5ft
	+33.5		5						Take S-3 from 5ft to 7ft
		Brownish tan to gray Silty SAND, trace clay (moist) [SM]	6	S-3	SS	17	3 4 5 3	9	
		Grayish brown to dark gray Silty medium to fine SAND, trace clay (moist) [SM]	7						Take S-4 from 7ft to 9ft
			8	S-4	SS	14	6 6 10 3	16	Drive casing to 9ft.
		Dark gray Silty medium to fine SAND (wet) [SM]	9 ▽						Drill to 9ft, smooth drilling, brown wash
			10	S-5	SS	15	3 3 5 5	8	Take S-5 from 9ft to 11ft using 3-inch spoon
		Light gray Silty medium to fine SAND (wet) [SM]	11						Take S-6 from 11ft to 13ft
			12	S-6	SS	17	4 6 12 10	18	
			13						Drill to 15ft, smooth drilling, brown wash
			14						
	+23.5		15						Take S-7 from 15ft to 17ft qu = 1.5 tsf (PP)
		Gray Silty CLAY, some fine sand (wet) [CL]	16	S-7	SS	20	5 5 9 12	14	
			17						

LANGAN

Log of Boring **CT-3** Sheet 2 of 3

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 38.5 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+20.9		17.6						
			18						
			19						Drill to 20ft, smooth drilling, brown wash
	+18.5		20						Take S-8 from 20ft to 22ft
		Gray Silty fine SAND, some clay (wet) [SM]					4		
			21	S-8	SS	24	6 10	16	
			22				12		
			23						
			24						Drill to 25ft, smooth drilling, brown wash
		Gray medium to fine SAND, some silt, trace clay (wet) [SM]	25				23		Take S-9 from 25ft to 27ft
			26	S-9	SS	20	34 45	79	
			27				22		
			28						
			29						
			30						Drill to 30ft, smooth drilling, brown wash
		Gray Silty fine SAND, trace clay (wet) [SM]					11		Take S-10 from 30ft to 32ft
			31	S-10	SS	22	11 17	28	
			32				22		
			33						
			34						
			35				7		Drill to 35ft, smooth drilling, brown wash
		Gray Silty fine SAND, trace clay (wet) [SM]					8		Take S-11 from 35ft to 37ft
			36	S-11	SS	24	10	18	
			37				10		
			38						
			39						

LANGAN

Log of Boring **CT-3** Sheet 3 of 3

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 38.5 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	-1.1	Gray Silty fine SAND (wet) [SM]	39.6						Drill to 40ft, smooth drilling, brown wash Take S-12 from 40ft to 42ft
			40						
			41	S-12	SS	24	18 17 10	27	
			42				12		
			43						
			44						
			45						Drill to 45ft, smooth drilling, brown wash Take S-13 from 45ft to 47ft
		Gray Silty fine to medium SAND, trace clay (wet) [SM]					12		
			46	S-13	SS	12	8 9	17	
			47				11		
			48						
			49						
			50						Drill to 50ft, smooth drilling, brown wash Take S-14 from 50ft to 52ft qu = 4.0 tsf (PP)
	-11.5	Greenish brown Silty CLAY, some fine sand (wet) [CH]					9		
			51	S-14	SS	24	7 12	19	
			52				15		
		Greenish brown Silty CLAY, trace fine sand (wet) [CH]							Take U-1 from 52ft to 54ft
			53	UD-1	U	24			
			54						Take S-15 from 54ft to 56ft
		Greenish brown Silty CLAY, some fine sand (wet) [CH]					10 11		
			55	S-15	SS	24	10	21	
	-17.5		56				12		Stopped drilling 11/15/2024 at 2:50 PM. Upon completion, borehole backfilled with soil cutting and hole plug. Asphalt patched to match existing grade.
		End of Boring at 56.0ft.							
			57						
			58						
			59						
			60						
			61						

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Log of Boring **CT-4** Sheet 1 of 3

Project: JSUMC Campus Expansion	Project No.: 101166101
Location: 1945 NJ-33, Neptune City, NJ	Elevation and Datum: Approx. el. 39.0 (NAVD 88)
Drilling Company: Craig Geotechnical Drilling Co, Inc.	Date Started: 11/18/2024 — Date Finished: 11/18/2024
Drilling Equipment: Truck Rig	Completion Depth: 52.0 ft — Rock Depth: Not Encountered
Size and Type of Bit: 3-7/8in Tricone Roller Bit	Number of Samples: Disturbed 15 — Undisturbed 0 — Core 0
Casing Diameter (in): 4" diameter steel — Casing Depth (ft): 9.0	Water Level (ft.): First ▽ 7.0 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	Drilling Foreman: Shane Frick
Sampler: 2in OD Split Spoon	Field Engineer: Jonathan Gonzalez
Sampler Hammer: Safety — Weight (lbs): 140 — Drop (in): 30	

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+39.0								
	+38.5	Topsoil (6-inches thick)	0						Started Drilling on 11/18/2024 at 7:59 AM Hand auger to 5ft
		Brown medium to fine SAND, trace silt, trace fine gravel, root fragments (dry) [FILL]	1						Take grab sample S-1 from 1ft to 3ft
			2	S-1	GRAB				
		Light gray medium to fine SAND, some silt (moist) [FILL]	3						Take grab sample S-2 from 3ft to 5ft
			4	S-2	GRAB				
	+34.0	Orangish gray Silty fine SAND, trace clay (moist) [SM]	5						Take S-3 from 5ft to 7ft
			6	S-3	SS	18	4 4 5 3	9	
		Orangish gray to gray Silty medium to fine SAND, trace clay (wet) [SM] ▽	7						Take S-4 from 7ft to 9ft
			8	S-4	SS	22	9 6 10 5	16	Drive casing to 9ft.
	+30.0	Orangish gray medium to fine SAND, trace silt (wet) [SP-SM]	9						Drill to 9ft, smooth drilling, brown wash
			10	S-5	SS	14	11 11 9 6	20	Take S-5 from 9ft to 11ft using 3-inch spoon.
	+28.0	Gray Silty fine SAND (wet) [SM]	11						Take S-6 from 11ft to 13ft
			12	S-6	SS	23	4 7 10 10	17	Drill to 13ft, smooth drilling, gray wash
		Gray Silty medium to fine SAND (wet) [SM]	13						Take S-7 from 13ft to 15ft
			14	S-7	SS	15	5 7 8 11	15	
		Gray Silty medium to fine SAND, trace clay (wet) [SM]	15				17 15		Take S-8 from 15ft to 17ft
			16						

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Log of Boring **CT-4** Sheet 2 of 3

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 39.0 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft)	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+23.0		16	S-8		24	19	34	
			17				18		
			18						
			19						Drill to 20ft, smooth drilling, gray wash
		Gray Silty medium to fine SAND, some clay (wet) [SM]	20				6		Take S-9 from 20ft to 22ft
			21	S-9	SS	22	8 12	20	
			22				14		
			23						
			24						
			25				32		Drill to 25ft, smooth drilling, gray wash
	+14.0	Gray medium to fine SAND, trace silt (wet) [SP-SM]							Take S-10 from 25ft to 27ft
			26	S-10	SS	17	35 21	56	
			27				21		
			28						
			29						
			30						Drill to 30ft, smooth drilling, gray wash
	+9.0	Gray Silty fine SAND, trace clay (wet) [SM]					6		Take S-11 from 30ft to 32ft
			31	S-11	SS	23	10 18	28	
			32				19		
			33						
			34						
			35						Drill to 35ft, smooth drilling, gray wash
		Gray Silty fine SAND, trace clay (wet) [SM]					10		Take S-12 from 35ft to 37ft
			36				14		

LANGAN

Log of Boring **CT-4** Sheet 3 of 3

Project	Project No.
JSUMC Campus Expansion	101166101
Location	**Elevation and Datum**
1945 NJ-33, Neptune City, NJ	Approx. el. 39.0 (NAVD 88)

Material Symbol	Elev. (ft)	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr-resist BL/6in	N-Value (Blows/ft) 10 20 30 40	Remarks (Drilling Fluid, Casing Depth, Fluid Loss, Drilling Resistance, etc.)
	+3.0		36	S-12		24	15 16	29	
			37						
			38						
			39						
	-1.0		40						Drill to 40ft, smooth drilling, gray wash Take S-13 from 40ft to 42ft qu = 2.5 tsf (PP)
		Gray Silty CLAY, some fine sand (wet) [CH]	41	S-13	SS	24	8 8 8 16	16	
			42						
			43						
			44						
	-6.0		45						Drill to 45ft, smooth drilling, gray wash Take S-14 from 45ft to 47ft
		Gray medium to fine SAND, trace silt (wet) [SP-SM]	46	S-14	SS	18	21 32 24 17	56	
			47						
			48						
			49						
	-11.0		50						Drill to 50ft, smooth drilling, gray wash Take S-15 from 50ft to 52ft
		Greenish gray Silty CLAY, some medium to fine sand (wet) [CL]	51	S-15	SS	24	12 10 13 17	23	
	-13.0		52						Stopped drilling 11/18/2024 at 10:11 AM. Upon completion, borehole backfilled with soil cuttings and hole plug. Asphalt patched to match existing grade.
		End of Boring at 52.0ft.	53						
			54						
			55						
			56						

APPENDIX B

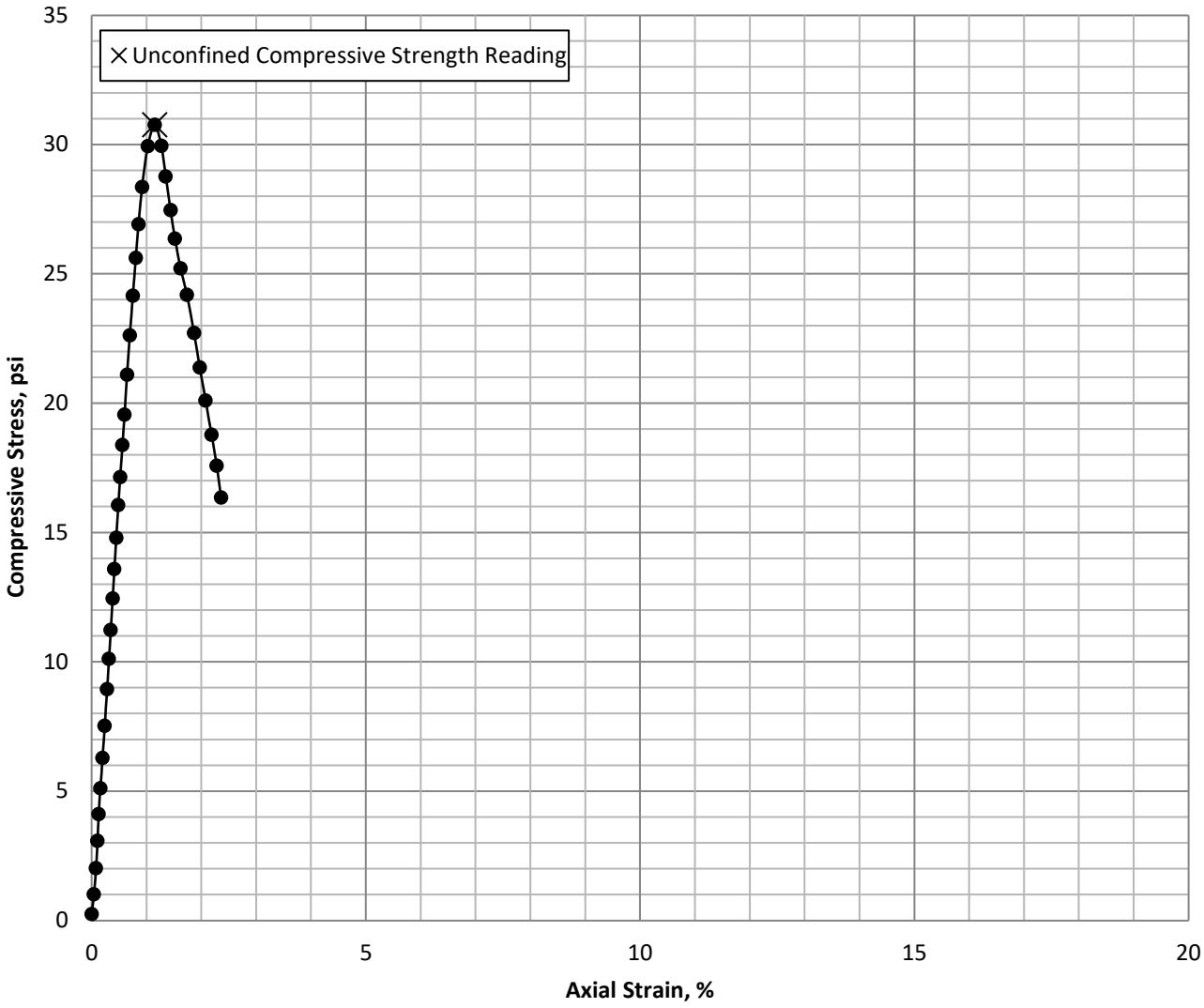
Geotechnical Laboratory Testing Results

Langan #101166101
JSUMC Care Tower
LABORATORY TESTING DATA SUMMARY

BORING NO.	SAMPLE NO.	DEPTH (ft)	IDENTIFICATION TESTS									STRENGTH			CONSOLIDATION		REMARKS / TEST ID
			WATER CONTENT (%)	LIQUID LIMIT (-)	PLASTIC LIMIT (-)	PLAS. INDEX (-)	USCS SYMB. (1)	SIEVE MINUS NO. 200 (%)	ORGANIC CONTENT (burnoff) (%)	TOTAL UNIT WEIGHT (pcf)	DRY UNIT WEIGHT (pcf)	Type Test	PEAK DEVIATOR STRESS (psi)	AXIAL STRAIN @ PEAK STRESS (%)	INITIAL CONDITIONS VOID RATIO (-)	INITIAL CONDITIONS SATUR-ATION (%)	
CT-1	S-2	7-9	30.3				CL	67.0									
CT-1	S-15	60-62	33.6	67	18	49	SC	48.9									
CT-1	S-20	85-87	29.6				SC	41.1									
CT-2	S-6	11-13	24.1				SC	49.0									
CT-2	S-7	15-17	33.7	37	22	15	CL	73.3	4.1								
CT-3	UD-1	52-54								115.4							
CT-3	UD-1	52.0	44.4														
CT-3	UD-1	52.6	33.7														
CT-3	UD-1B	52.90	31.7				CH	61.7		118.7	90.2	UC	30.8	1.2			UC24717
CT-3	UD-1	53.15	29.7														
CT-3	UD-1	53.7	33.5														
CT-3	UD-1D	54.0	32.1	81	19	62	CH		1.0	117.2	88.7				0.963	93	C24193
CT-4	S-13	40-42	40.4	87	25	62	CH		4.0								

Note: (1) USCS symbol based on visual observation and Sieve and Atterberg limits reported.

UNCONFINED COMPRESSIVE STRENGTH TEST, ASTM METHOD D2166



Specimen and Material Property Information

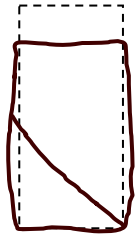
Sample Type: Intact tube sample

Description and/or Classification: CH, Gray, sandy fat clay.

	Water (1) Content (%)	Wet Unit Weight (pcf)	Dry Unit (1) Weight (pcf)	Void (2) Ratio (-)	Saturation (2) (%)	Length (inch)	Diameter (inch)	L/D (-)	LL (-)	PI (-)	Specific (2) Gravity (-)
Initial	31.7	118.7	90.2	0.93	94.9	6.018	2.885	2.1			2.79

Failure Summary

UC Compressive Strength, q_u (psi)	UC Shear Strength, s_u (psi)	Strain to Peak (%)	Strain Rate (%/min)
30.8	15.4	1.2	0.73



FAILURE SKETCH

Remarks and Notes:

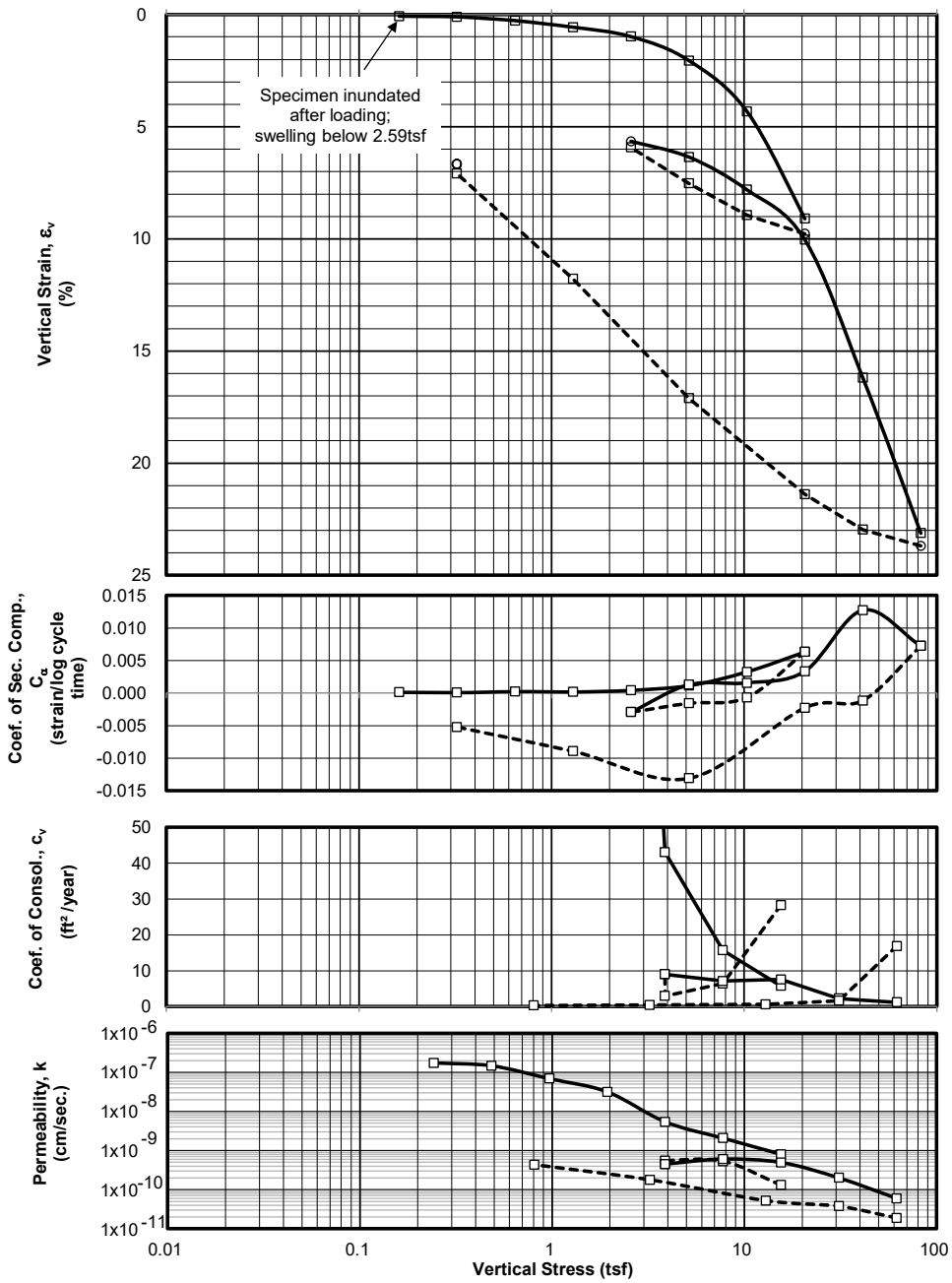
(1) Water Content determined after shear from partial specimen.

(2) Assumed specific gravity

Tested by: DD Reviewed by: CMJ

Test Date: 12/6/2024 Review Date: 1/6/2025

Langan	**Project # 101166101**	**JSUMC Care Tower**	**UNCONFINED COMPRESSION TEST**
TERRASENSE Geotechnical Laboratory	**Project # 24013163A**		**Boring: CT-3 Sample: UD-1 Section: B Depth: 52.90 ft.**



SAMPLE INFORMATION

Boring:	CT-3
Sample:	UD-1D
Depth:	54.00 feet
Elevation:	
Type:	3-inch thin wall tube
Description:	CH, Gray fat clay with sand.

LL = 81, PL = 19, PI = 62

SPECIMEN INFORMATION

(NOTE: Initial and final states refer to beginning and end of test)

Initial height:	0.62	inch
Diameter:	2.50	inch

Initial water content:	32.1	%
Initial total unit weight:	117.2	pcf
Initial dry unit weight:	88.7	pcf
Initial void ratio:	0.963	
Initial degree of saturation:	93	%
Final water content:	31.0	%
Final total unit weight:	122.4	pcf
Final dry unit weight:	93.5	pcf
Final void ratio:	0.863	
Final degree of saturation:	100	%

(assumed specific gravity = 2.79)

TEST SUMMARY

Construction Method:	Casagrande (Log)
Estimated preconsolidation stress (tsf):	14.2 (Range: 12.3 to 16.1)
Estimated in situ effective overburden stress (tsf):	
Compression Ratio (strain per log cycle stress):	0.233
Compression Index (void ratio per log cycle stress):	0.457
Swell Ratio (strain per log cycle stress):	0.050
Swell Index (void ratio per log cycle stress):	0.098
Recompression Ratio (strain per log cycle stress):	0.046
Recompression Index (void ratio per log cycle stress):	0.090
Remarks:	

LEGEND: □ End of primary o End of Stage ——— Loading - - - - - - - Unloading

Test Date: 12/6/24 Tested By: MCT Checked By: CMJ

Langan Project No. 101166101	JSUMC Care Tower	ONE DIMENSIONAL CONSOLIDATION TEST Boring: CT-3 Depth: 54.00 feet
TERRASENSE Geotechnical Laboratory	Project No. 24013163A(2)	January 2025

PROJECT:	JSUMC						
PROJECT NO.:	24013163A(2)	Initial height:	0.616	inch	Final height:	0.585	inch
BORING:	CT-3	Initial water content:	32.1	%	Final water content:	31.0	%
SAMPLE:	UD-1D	Initial dry density:	88.7	pcf	Final dry density:	93.5	pcf
TEST:	C24193	Initial total density:	117.2	pcf	Final total density:	122.4	pcf
DEPTH, feet:	54	Initial saturation:	93	%	Final saturation:	100	%
BY:	MCT	Initial void ratio:	0.963		Final void ratio:	0.863	
TEST DATE:	12/6/2024				Final strain:	5.1	%

EQUIPMENT:

Load Frame No.: 9

Ring Diameter: 2.5 inch

SPECIMEN DESCRIPTION: CH, Gray fat clay with sand.

G	LL	PL	PI
2.79	81	19	62

Load No.	Load (tsf)	d_{100} (inch)	t_{100} Strain (%)	t_{100} Void Ratio (-)	Final Strain (%)	Final Void Ratio (-)	c_v (ft²/year)	C_α (strain/logt)	Constrained Modulus (tsf)	Permeability (cm/sec)
1	0.162	0.0005	0.078	0.961	0.047	0.962	114	0.0001	209	2E-08
2	0.323	0.0007	0.108	0.961	0.096	0.961	3099	0.0001	539	2E-07
3	0.647	0.0017	0.276	0.957	0.266	0.958	937	0.0002	193	1E-07
4	1.29	0.0035	0.567	0.952	0.542	0.952	509	0.0002	222	7E-08
5	2.59	0.0061	0.983	0.944	1.029	0.943	325	0.0004	311	3E-08
6	5.17	0.0127	2.056	0.922	2.295	0.918	43	0.0011	241	5E-09
7	10.4	0.0266	4.324	0.878	4.697	0.871	16	0.0032	228	2E-09
8	20.7	0.0561	9.103	0.784	9.776	0.771	6	0.0063	217	8E-10
9	10.4	0.0551	8.943	0.787	8.843	0.789	28	-0.0007	6493	1E-10
10	5.17	0.0463	7.522	0.815	7.342	0.819	6	-0.0016	364	5E-10
11	2.59	0.0365	5.931	0.846	5.654	0.852	3	-0.0029	163	5E-10
12	5.17	0.0392	6.359	0.838	6.441	0.836	9	0.0013	605	4E-10
13	10.4	0.0481	7.810	0.810	8.032	0.805	7	0.0015	357	6E-10
14	20.7	0.0619	10.048	0.766	10.490	0.757	8	0.0033	462	5E-10
15	41.4	0.0998	16.195	0.645	17.160	0.626	2	0.0127	337	2E-10
16	82.8	0.1425	23.123	0.509	23.692	0.498	1	0.0072	598	6E-11
17	41.4	0.1415	22.970	0.512	22.816	0.515	17	-0.0012	27132	2E-11
18	20.7	0.1318	21.397	0.543	21.160	0.547	2	-0.0023	1315	4E-11
19	5.17	0.1054	17.109	0.627	16.657	0.636	0.626	-0.0131	362	5E-11
20	1.29	0.0726	11.780	0.732	11.277	0.741	0.431	-0.0089	73	2E-10
21	0.323	0.0437	7.094	0.824	6.668	0.832	0.298	-0.0052	20.70	4E-10

APPENDIX C

Evaluation of Corrosion Potential

CORROSION POTENTIAL EVALUATION

Project:	**JSUMC - Care Tower**	**Location:**	**Composite CT-1**
Location:	**Neptune, NJ**	**Sample:**	**COMPOSITE**
Job Number:	**101166101**	**Depth:**	**0'-5'**

CORROSION POTENTIAL FOR GRAY & DUCTILE CAST IRON-PIPE

Ref: ASTM A674-18 1 megaohm-cm= 1,000,000 ohm-cm

Soil Characterisitics	Laboratory Test Results	Points
Resistivity (ohm-cm)	1980	5
pH	10.8	3
Redox Potential (mV)	324	0
Sulfides (Positive, Trace, Negative)	6	3.5
Moisture (Poor, Fair, or Good)	Fair	1
	Total Points:	12.5

CORROSIVE

total points > 10 corrosive

total points < 10 non-corrosive

TABLE X1.1 Soil Test Evaluation[A]

Soil Characteristics	Points
Resistivity, ohm-cm (based on water-saturated soil-box):	
<1500	10
≥1500 to 1800	8
>1800 to 2100	5
>2100 to 2500	2
>2500 to 3000	1
>3000	0
pH:	
0–2	5
2–4	3
4–6.5	0
6.5–7.5	0[B]
7.5–8.5	0
>8.5	3
Redox potential:	
> +100 mV	0
+50 to +100 mV	3.5
0 to +50 mV	4
Negative	5
Sulfides:	
Positive	3.5
Trace	2
Negative	0
Moisture:	
Poor drainage, continuously wet	2
Fair drainage, generally moist	1
Good drainage, generally dry	0

[A] Ten points = corrosive to or ductile iron pipe; protection is indicated.
[B] If sulfides are present and low (<100 mv) or negative redox potential results are obtained, three points shall be given for this range.

CONCRETE REQUIREMENTS

Ref 1: ACI 318, Part 3, Chapter 4 1kg=1,000g=1,000,000mg
Ref 2: NAVFAC DM 7.2 pg 146

Water Soluble Sulfate in Soil (mg/kg or ppm)	Water Soluble Sulfate in Soil (% by weight)	Exposure Type	Cement Type
422	0.0422	Negligible	**Type I**

to convert mg/kg (ppm) to weight ratio divide by 1,000,000 and to obtain % ratio multiply by 100

Ref 1: ACI 318, Part 3, Chapter 4

0.00 to 0.10, Negligible and Type I Cement

0.10 to 0.20, Moderate, and Type II Cement (typical for seawater)

0.20 to 2.00, Severe, and Type V Cement

over 2.00, Very Severe, and Type V Cement with pozzolan

Ref 2: NAVFAC DM 7.2 pg 146

if Sulfates in soil greater than 0.5%, or more than 1200 ppm in groundwater, need Type V Cement

Ref 3:FHWA GEC 4 Ground Anchors page 136

Determine Sulfate content par AASHTO T-290. For Sulfate content between 0.1% and 0.2% use Type II cement, For Sulfate content between 0.2% and 22% use Type V cement and Sulfate content gretaer than 2% use Type V plus pozzolan.

CRITICAL VALUES FOR GROUND AGGRESSIVENESS

Ref: FHWA DP-68-IR, as summarized in Fang (1991)

Test	Laboratory Test Results	Reference Standard	Critical Values	Critical?
Resistivity	1980	ASTM G57	below 2000 ohm/cm	**YES**
pH	10.8	ASTM G51	below 4.5	**NO**
Sulfate	422	CalDOT 407	above 500 ppm	**NO**
Chlorides	139	CalDOT 422	above 100ppm	**YES**

BDL : Below detectable limits

CORROSION POTENTIAL EVALUATION

Project:	**JSUMC - Care Tower**	**Location:**	**Composite CT-4**
Location:	**Neptune, NJ**	**Sample:**	**COMPOSITE**
Job Number:	**101166101**	**Depth:**	**0'-5'**

CORROSION POTENTIAL FOR GRAY & DUCTILE CAST IRON-PIPE

Ref: ASTM A674-18 1 megaohm-cm= 1,000,000 ohm-cm

Soil Characterisitics	Laboratory Test Results	Points
Resistivity (ohm-cm)	2740	1
pH	11	3
Redox Potential (mV)	366	0
Sulfides (Positive, Trace, Negative)	6.3	3.5
Moisture (Poor, Fair, or Good)	Fair	1
	Total Points:	8.5

NOT CORROSIVE

total points > 10 corrosive

total points < 10 non-corrosive

TABLE X1.1 Soil Test Evaluation[A]

Soil Characteristics	Points
Resistivity, ohm-cm (based on water-saturated soil-box):	
<1500	10
≥1500 to 1800	8
>1800 to 2100	5
>2100 to 2500	2
>2500 to 3000	1
>3000	0
pH:	
0–2	5
2–4	3
4–6.5	0
6.5–7.5	0[B]
7.5–8.5	0
>8.5	3
Redox potential:	
> +100 mV	0
+50 to +100 mV	3.5
0 to +50 mV	4
Negative	5
Sulfides:	
Positive	3.5
Trace	2
Negative	0
Moisture:	
Poor drainage, continuously wet	2
Fair drainage, generally moist	1
Good drainage, generally dry	0

[A] Ten points = corrosive to or ductile iron pipe; protection is indicated.
[B] If sulfides are present and low (<100 mv) or negative redox potential results are obtained, three points shall be given for this range.

CONCRETE REQUIREMENTS

Ref 1: ACI 318, Part 3, Chapter 4 1kg=1,000g=1,000,000mg
Ref 2: NAVFAC DM 7.2 pg 146

Water Soluble Sulfate in Soil (mg/kg or ppm)	Water Soluble Sulfate in Soil (% by weight)	Exposure Type	Cement Type
383	0.0383	Negligible	**Type I**

to convert mg/kg (ppm) to weight ratio divide by 1,000,000 and to obtain % ratio multiply by 100

Ref 1: ACI 318, Part 3, Chapter 4

0.00 to 0.10, Negligible and Type I Cement

0.10 to 0.20, Moderate, and Type II Cement (typical for seawater)

0.20 to 2.00, Severe, and Type V Cement

over 2.00, Very Severe, and Type V Cement with pozzolan

Ref 2: NAVFAC DM 7.2 pg 146

if Sulfates in soil greater than 0.5%, or more than 1200 ppm in groundwater, need Type V Cement

Ref 3:FHWA GEC 4 Ground Anchors page 136

Determine Sulfate content par AASHTO T-290. For Sulfate content between 0.1% and 0.2% use Type II cement, For Sulfate content between 0.2% and 22% use Type V cement and Sulfate content gretaer than 2% use Type V plus pozzolan.

CRITICAL VALUES FOR GROUND AGGRESSIVENESS

Ref: FHWA DP-68-IR, as summarized in Fang (1991)

Test	Laboratory Test Results	Reference Standard	Critical Values	Critical?
Resistivity	2740	ASTM G57	below 2000 ohm/cm	**NO**
pH	11	ASTM G51	below 4.5	**NO**
Sulfate	383	CalDOT 407	above 500 ppm	**NO**
Chlorides	131	CalDOT 422	above 100ppm	**YES**

BDL : Below detectable limits

ATTACHMENT A

Historic Topographic Maps

JSUMC

1945 NJ-33

Neptune, NJ 07753

Inquiry Number: 7820492.4

November 13, 2024

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

11/13/24

Site Name:	Client Name:
JSUMC	Langan
1945 NJ-33	300 Kimball Drive, 4th Floor
Neptune, NJ 07753	Parsippany, NJ 07054-2172
EDR Inquiry # 7820492.4	Contact: Rebecca Blocker

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Langan were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# NA

Project: NA

Coordinates:

Latitude:	40.208933 40° 12' 32" North
Longitude:	-74.041296 -74° 2' 29" West
UTM Zone:	Zone 18 North
UTM X Meters:	581585.37
UTM Y Meters:	4451387.83
Elevation:	36.00' above sea level

Maps Provided:

2019	1943
2016	1902
2014	1901
1995	1893
1989	1888
1981	
1970	
1954	

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2019 Source Sheets

Asbury Park
2019
7.5-minute, 24000

2016 Source Sheets

Asbury Park
2016
7.5-minute, 24000

2014 Source Sheets

Asbury Park
2014
7.5-minute, 24000

1995 Source Sheets

Asbury Park
1995
7.5-minute, 24000
Aerial Photo Revised 1995

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1989 Source Sheets

Asbury Park
1989
7.5-minute, 24000
Aerial Photo Revised 1986

1981 Source Sheets

Asbury Park
1981
7.5-minute, 24000
Aerial Photo Revised 1976

1970 Source Sheets

Asbury Park
1970
7.5-minute, 24000
Aerial Photo Revised 1970

1954 Source Sheets

Asbury Park
1954
7.5-minute, 24000
Aerial Photo Revised 1941

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1943 Source Sheets

Asbury Park
1943
7.5-minute, 24000
Aerial Photo Revised 1941

1902 Source Sheets

Navesink
1902
30-minute, 125000

1901 Source Sheets

Asbury Park
1901
15-minute, 62500

1893 Source Sheets

Asbury Park
1893
15-minute, 62500

Topo Sheet Key

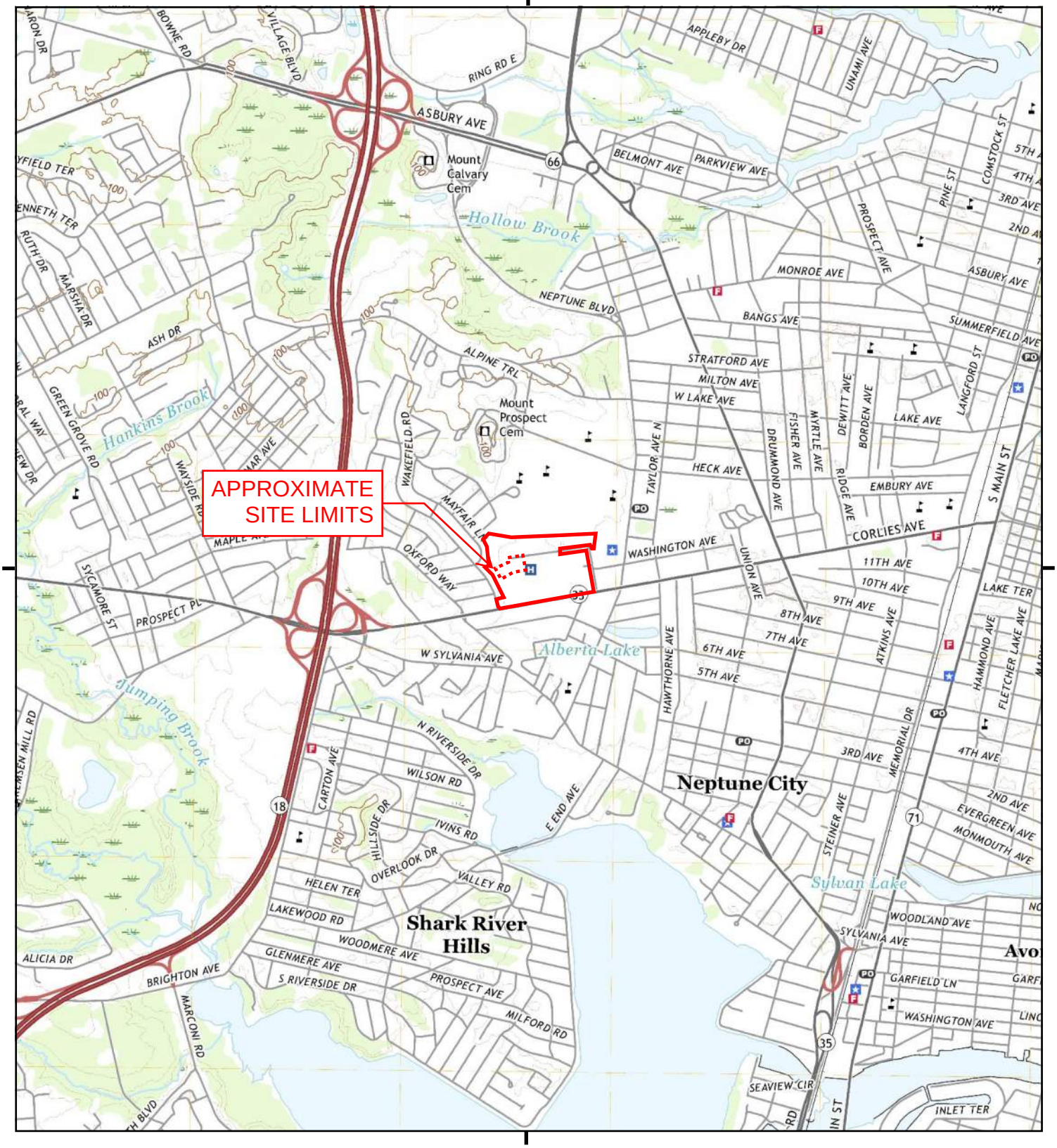
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1888 Source Sheets

Asbury Park
1888
15-minute, 62500

Historical Topo Map

2019



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

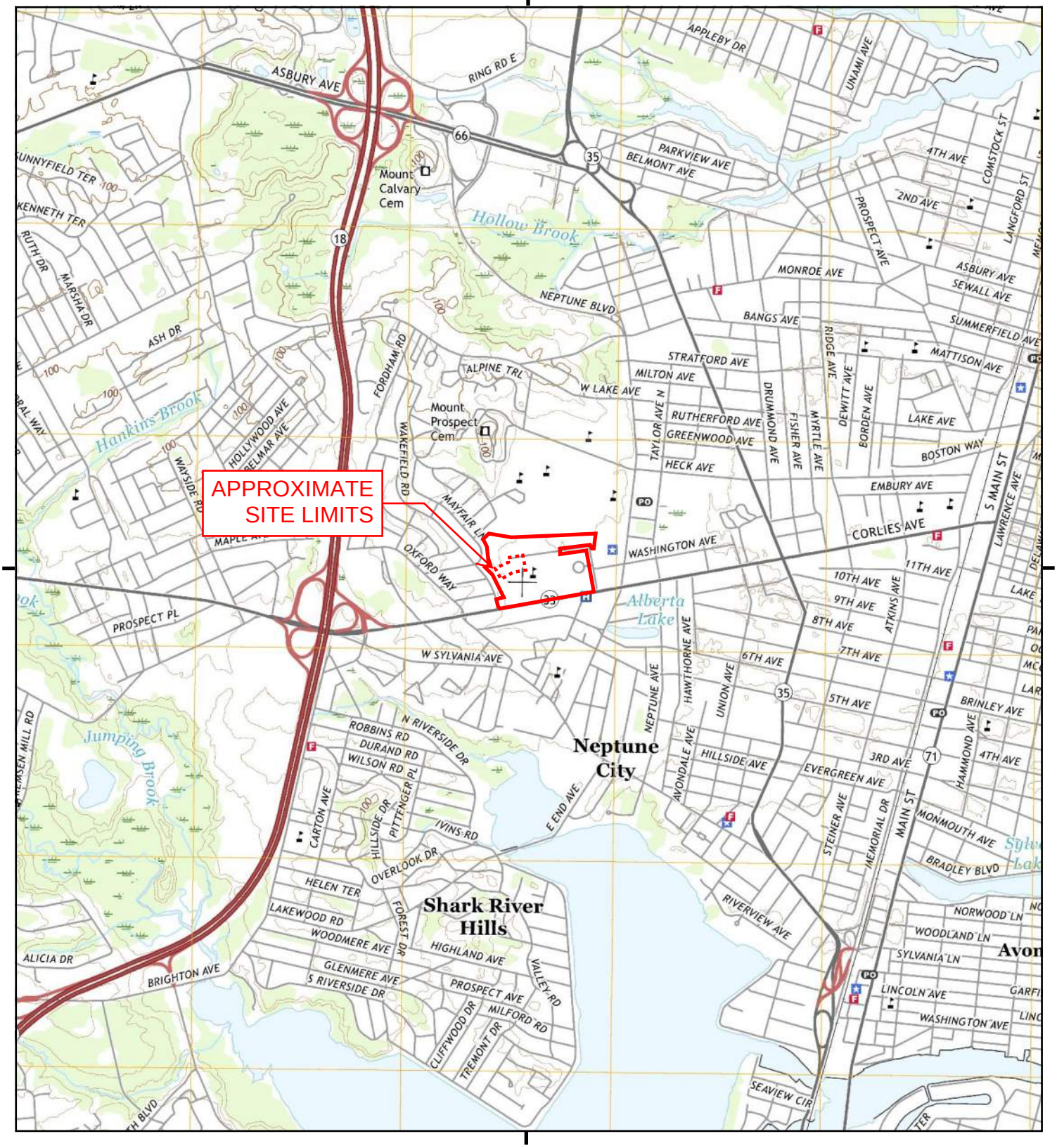
TP, Asbury Park, 2019, 7.5-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N

Historical Topo Map

2016



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

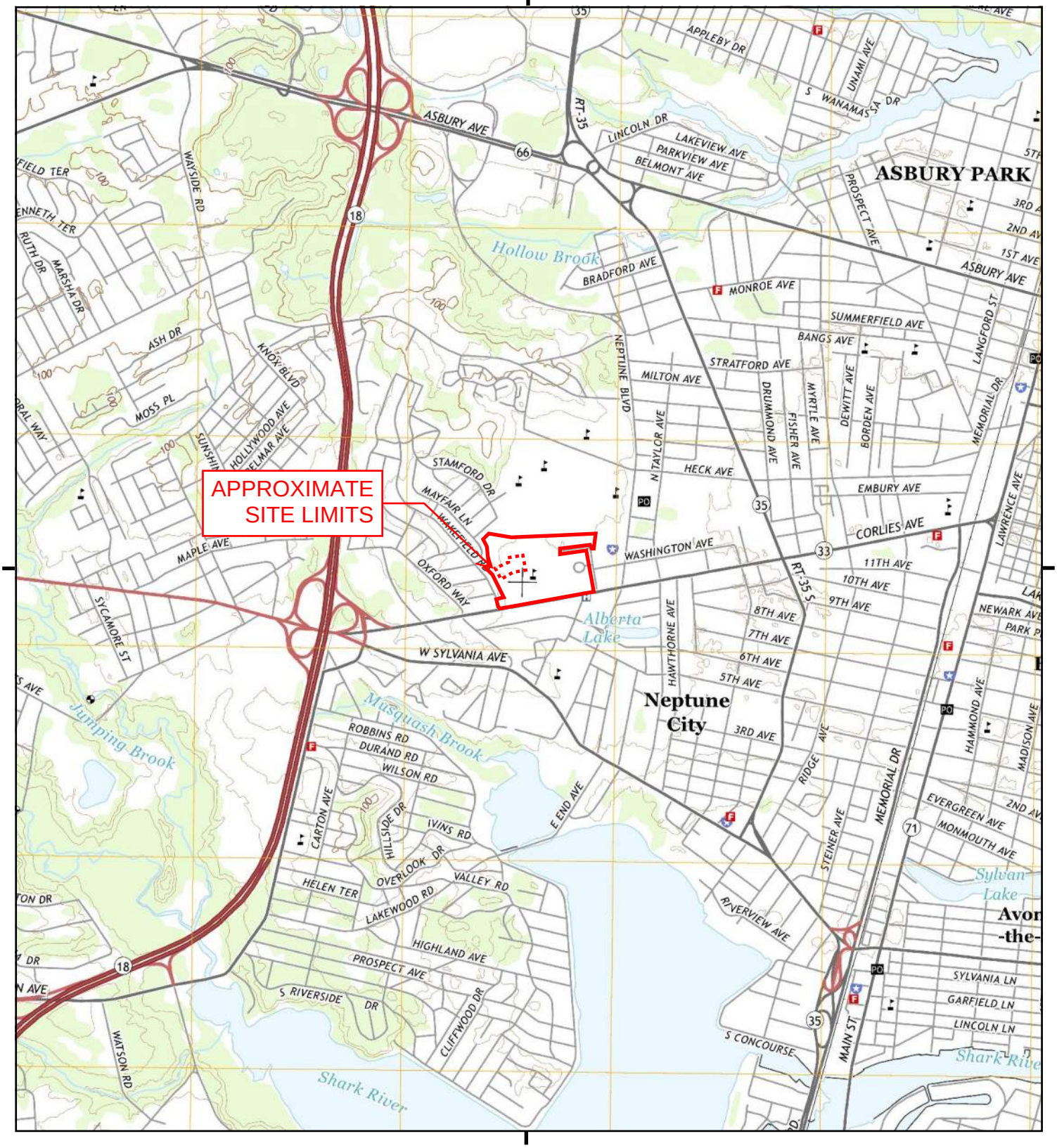
TP, Asbury Park, 2016, 7.5-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N

Historical Topo Map

2014



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

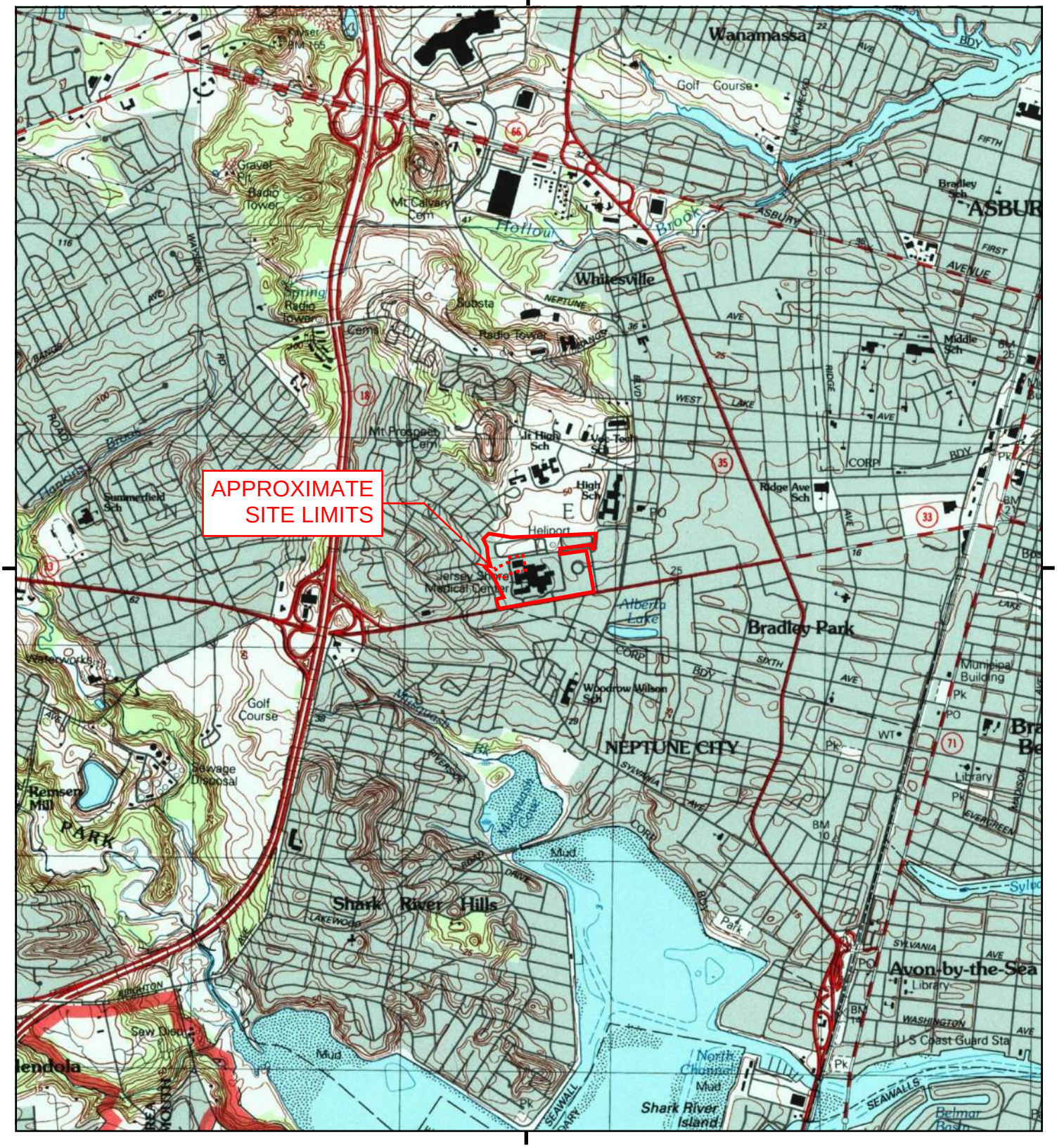
TP, Asbury Park, 2014, 7.5-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N

Historical Topo Map

1995



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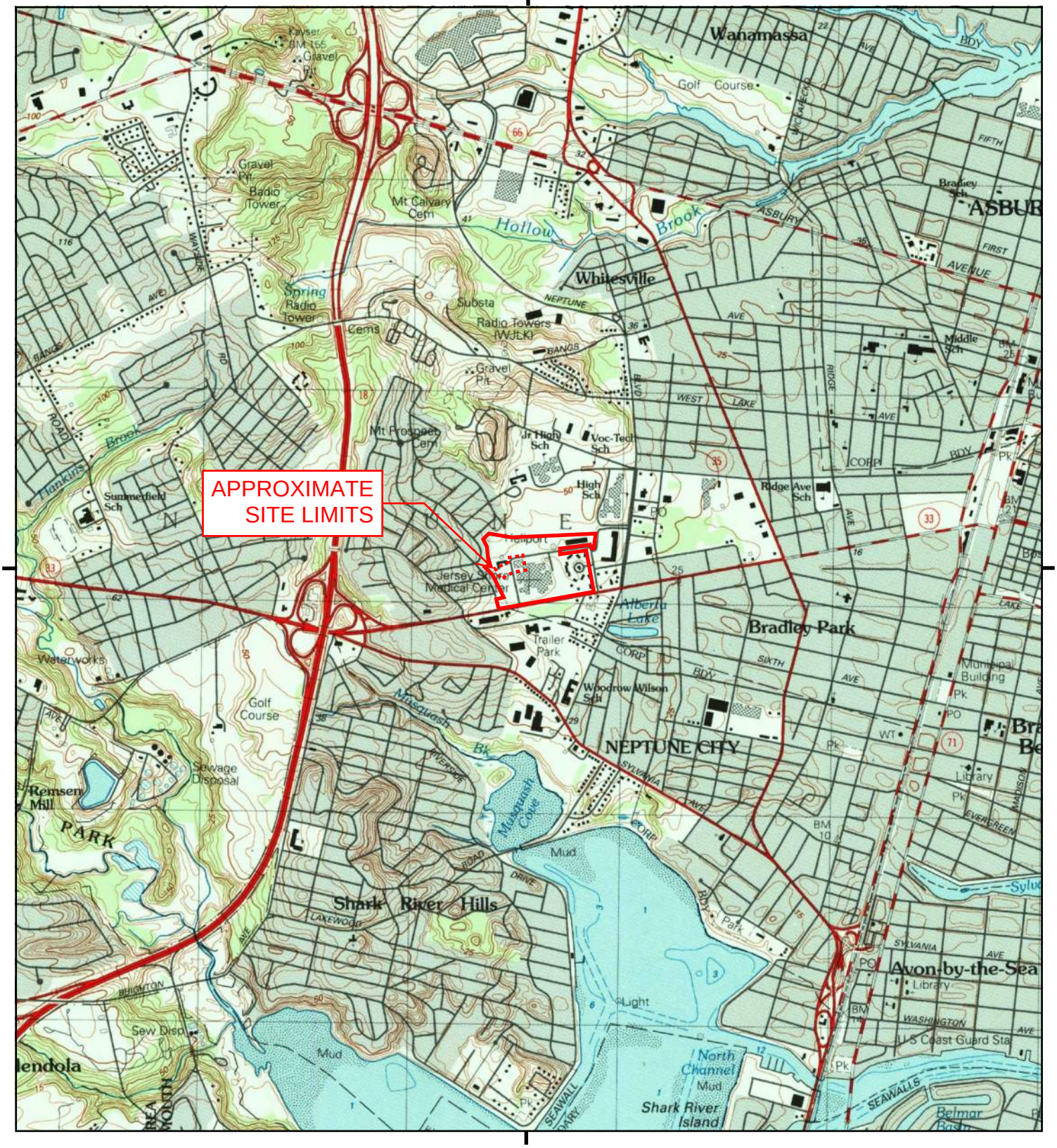
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Asbury Park, 1995, 7.5-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N



This report includes information from the following map sheet(s).

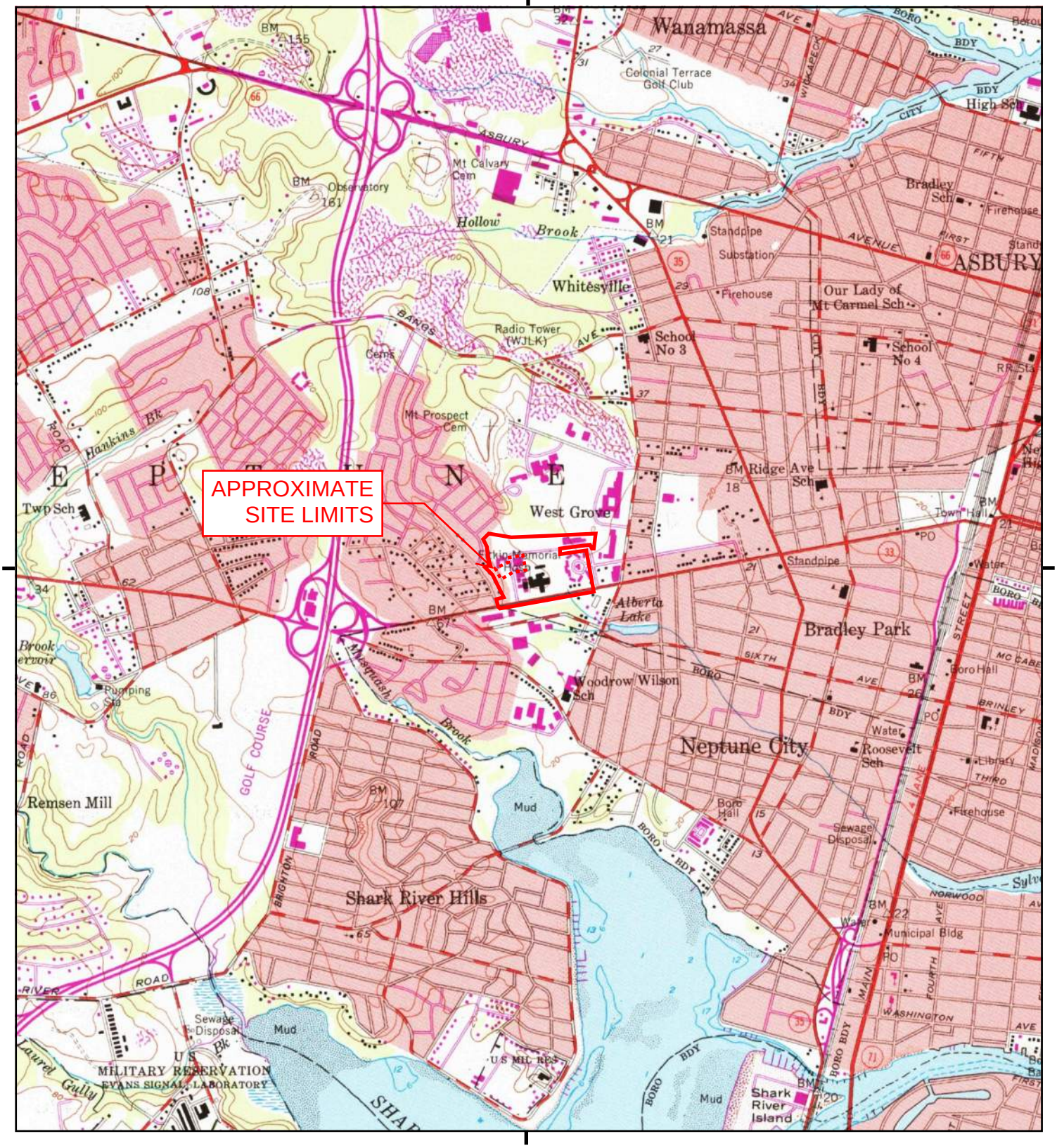
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Asbury Park, 1989, 7.5-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N



This report includes information from the following map sheet(s).

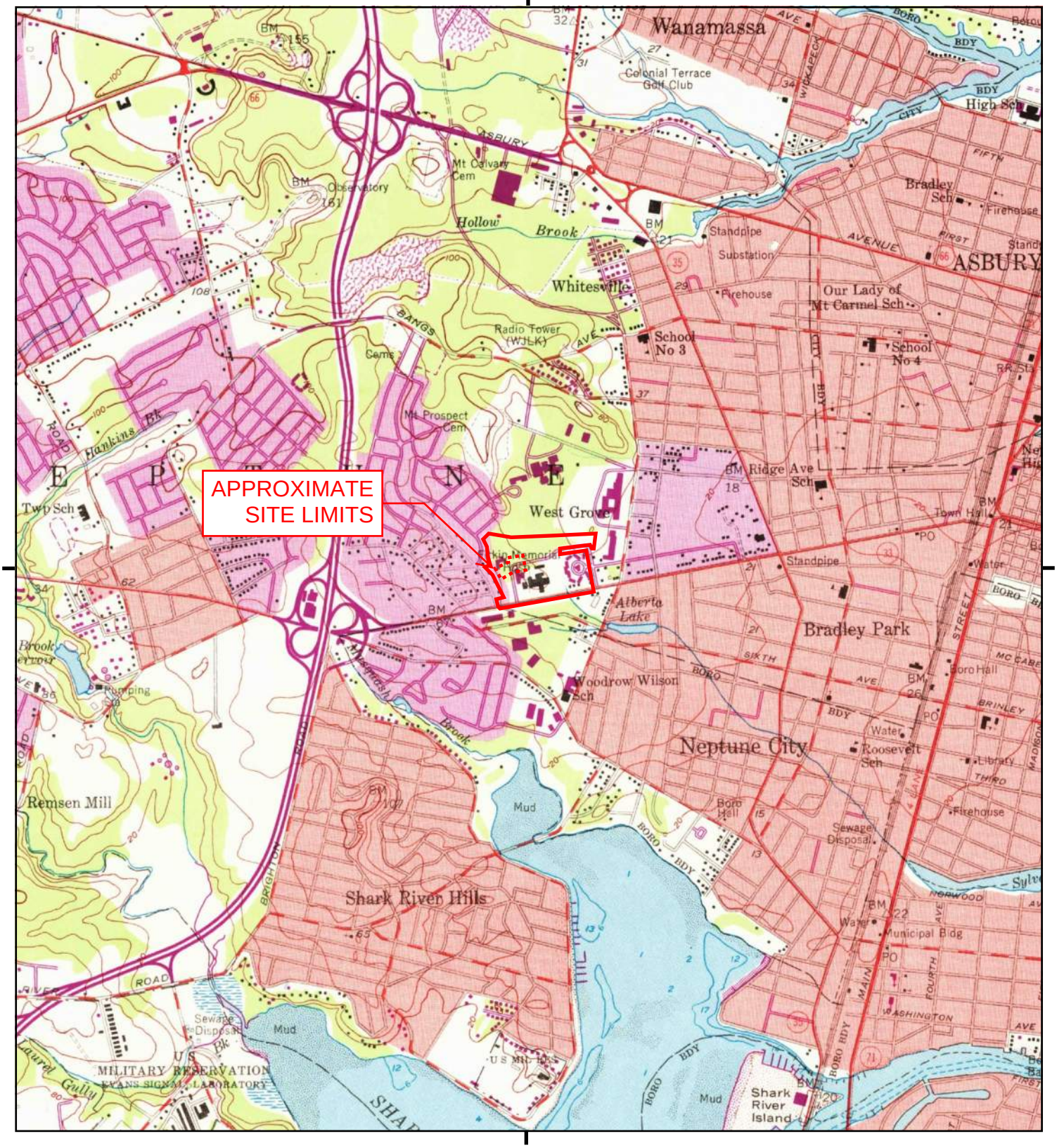
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Asbury Park, 1981, 7.5-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N



This report includes information from the following map sheet(s).

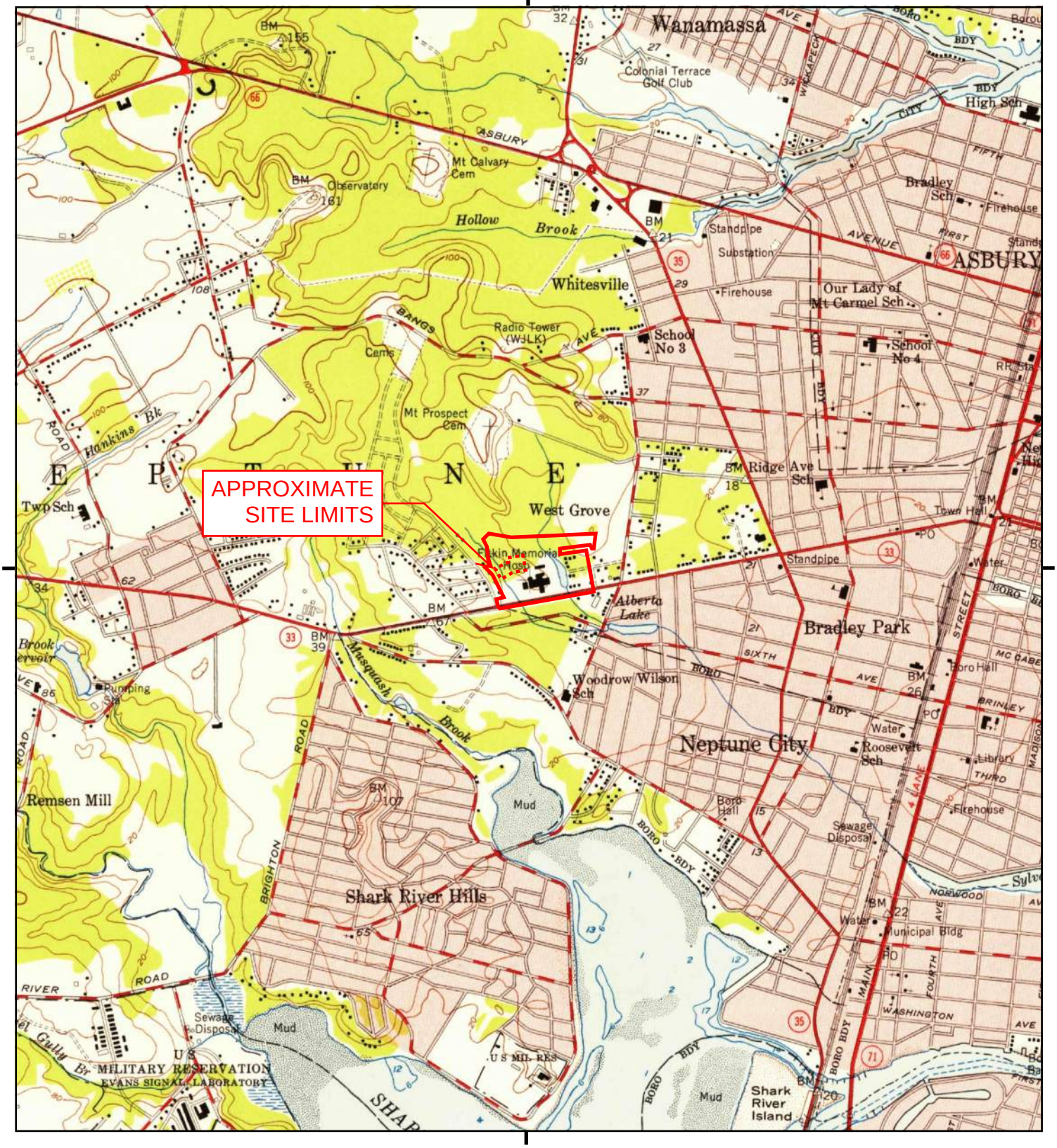
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Asbury Park, 1970, 7.5-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N



This report includes information from the following map sheet(s).

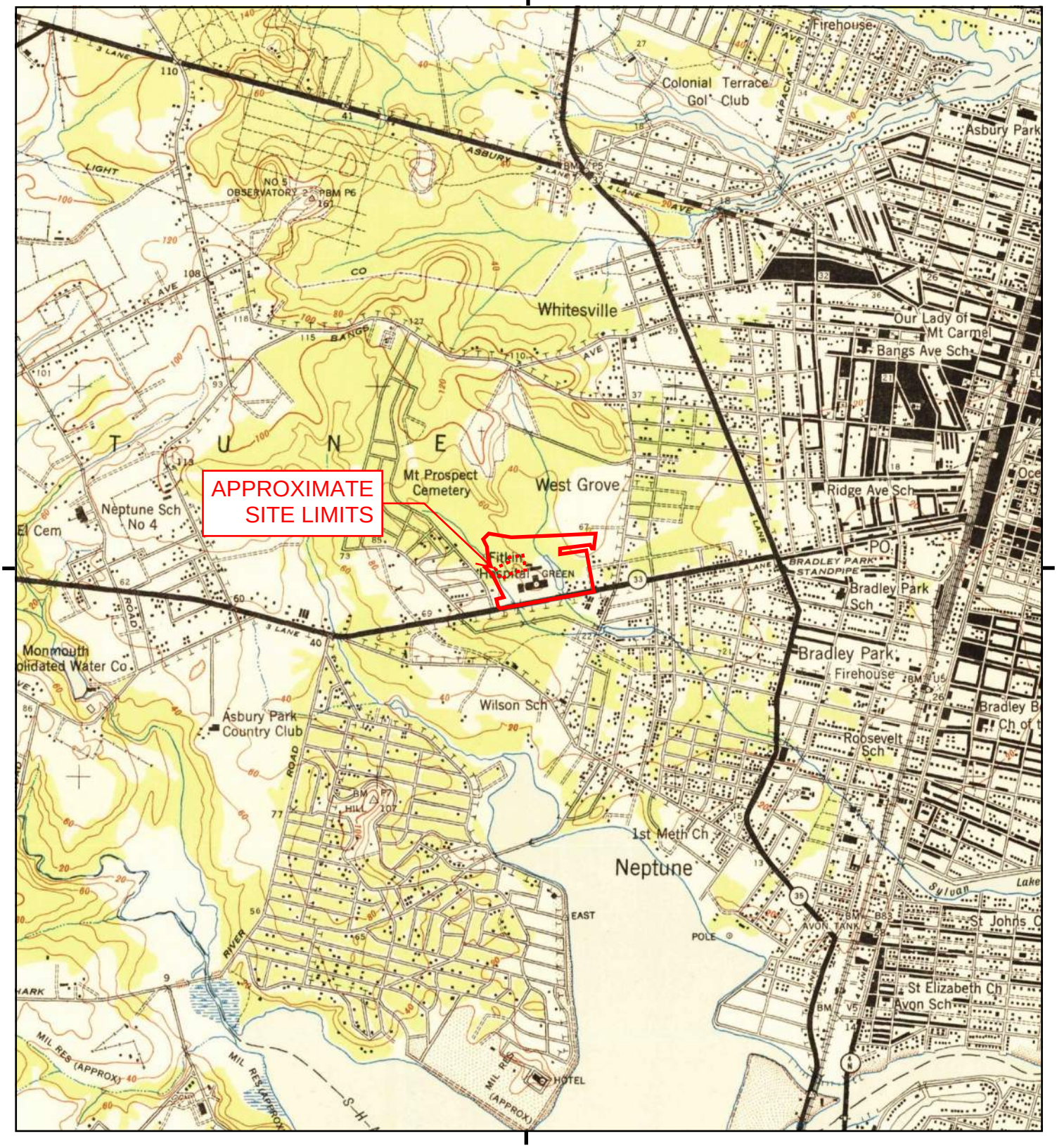
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Asbury Park, 1954, 7.5-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N



This report includes information from the following map sheet(s).

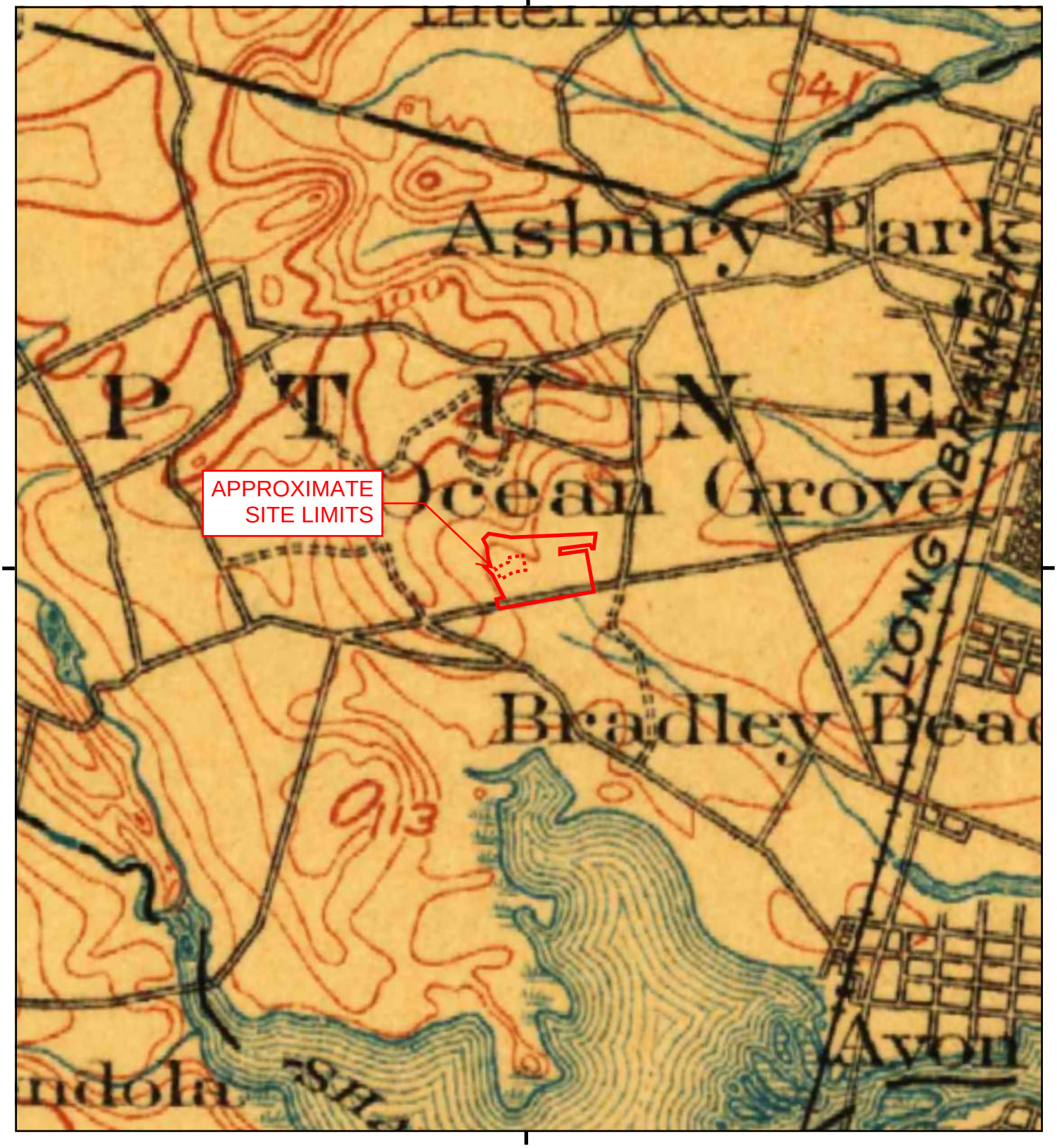
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Asbury Park, 1943, 7.5-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N



This report includes information from the following map sheet(s).

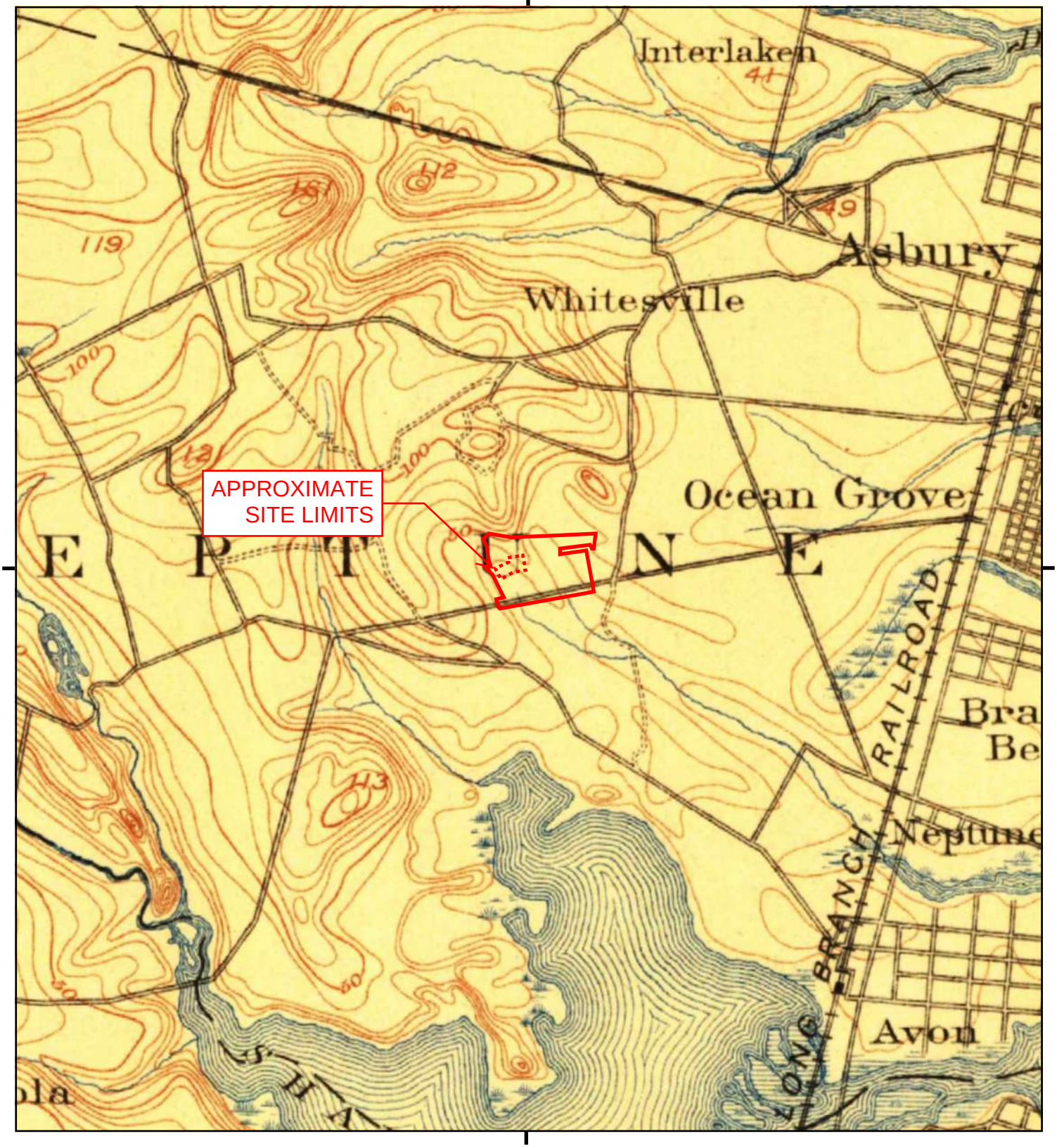
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Navesink, 1902, 30-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N



This report includes information from the following map sheet(s).

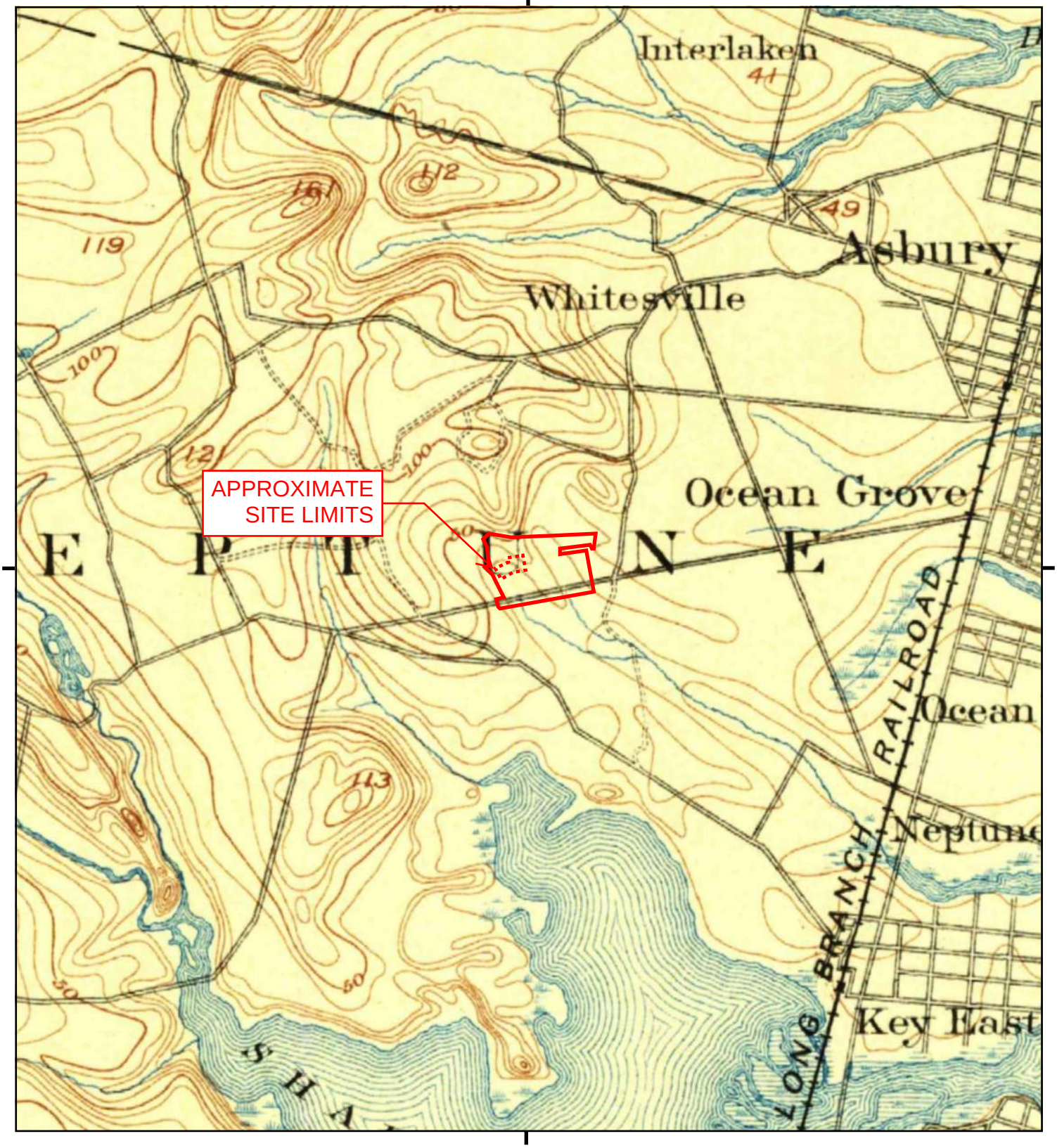
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Asbury Park, 1901, 15-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N



This report includes information from the following map sheet(s).

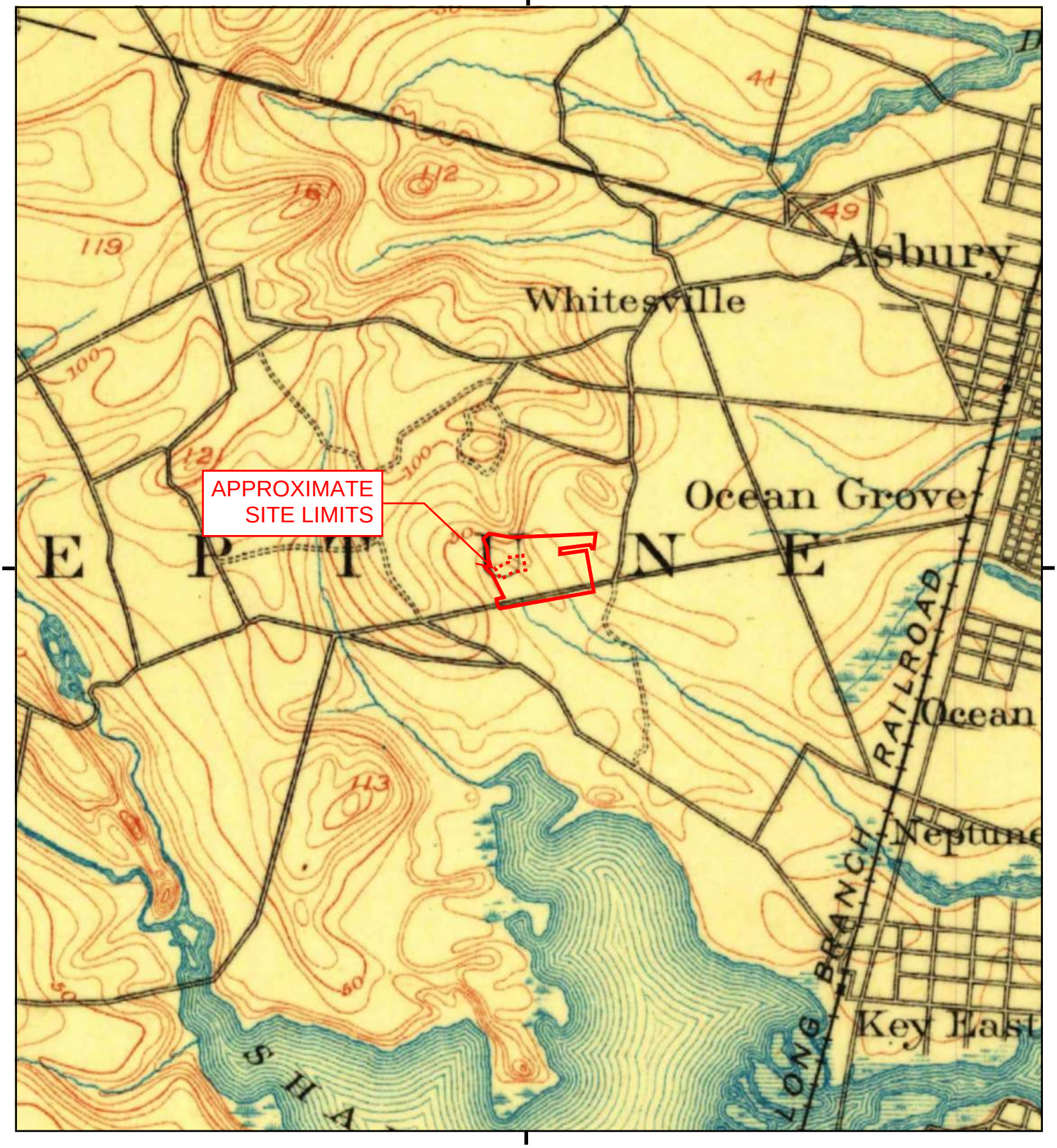
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Asbury Park, 1893, 15-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Asbury Park, 1888, 15-minute

SITE NAME: JSUMC
ADDRESS: 1945 NJ-33
Neptune, NJ 07753
CLIENT: Langan

N

ATTACHMENT B

Historic Aerial Photographs

JSUMC

1945 NJ-33

Neptune, NJ 07753

Inquiry Number: 7820492.8

November 13, 2024

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
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Toll Free: 800.352.0050
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EDR Aerial Photo Decade Package

11/13/24

Site Name:

JSUMC
1945 NJ-33
Neptune, NJ 07753
EDR Inquiry # 7820492.8

Client Name:

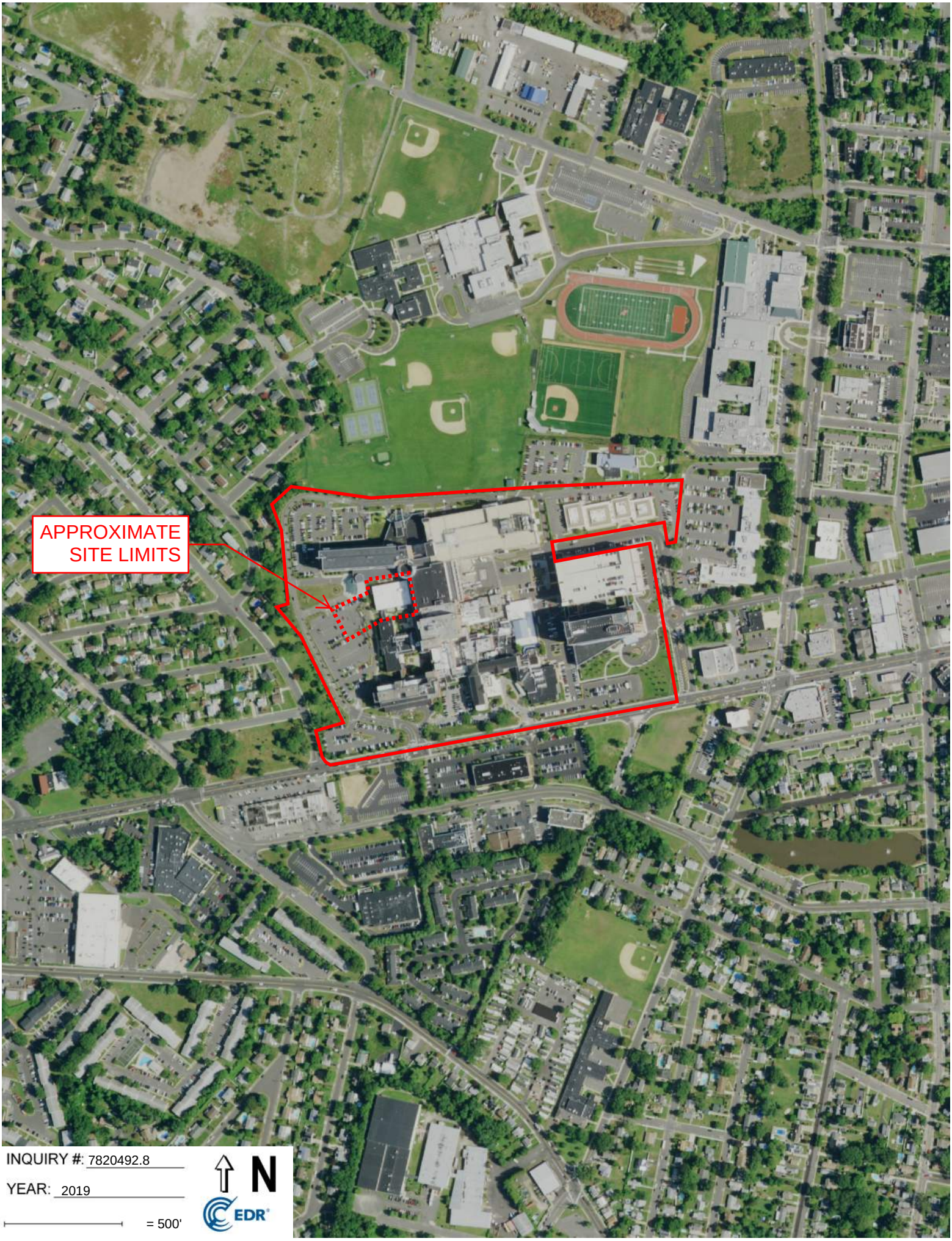
Langan
300 Kimball Drive, 4th Floor
Parsippany, NJ 07054-2172
Contact: Rebecca Blocker

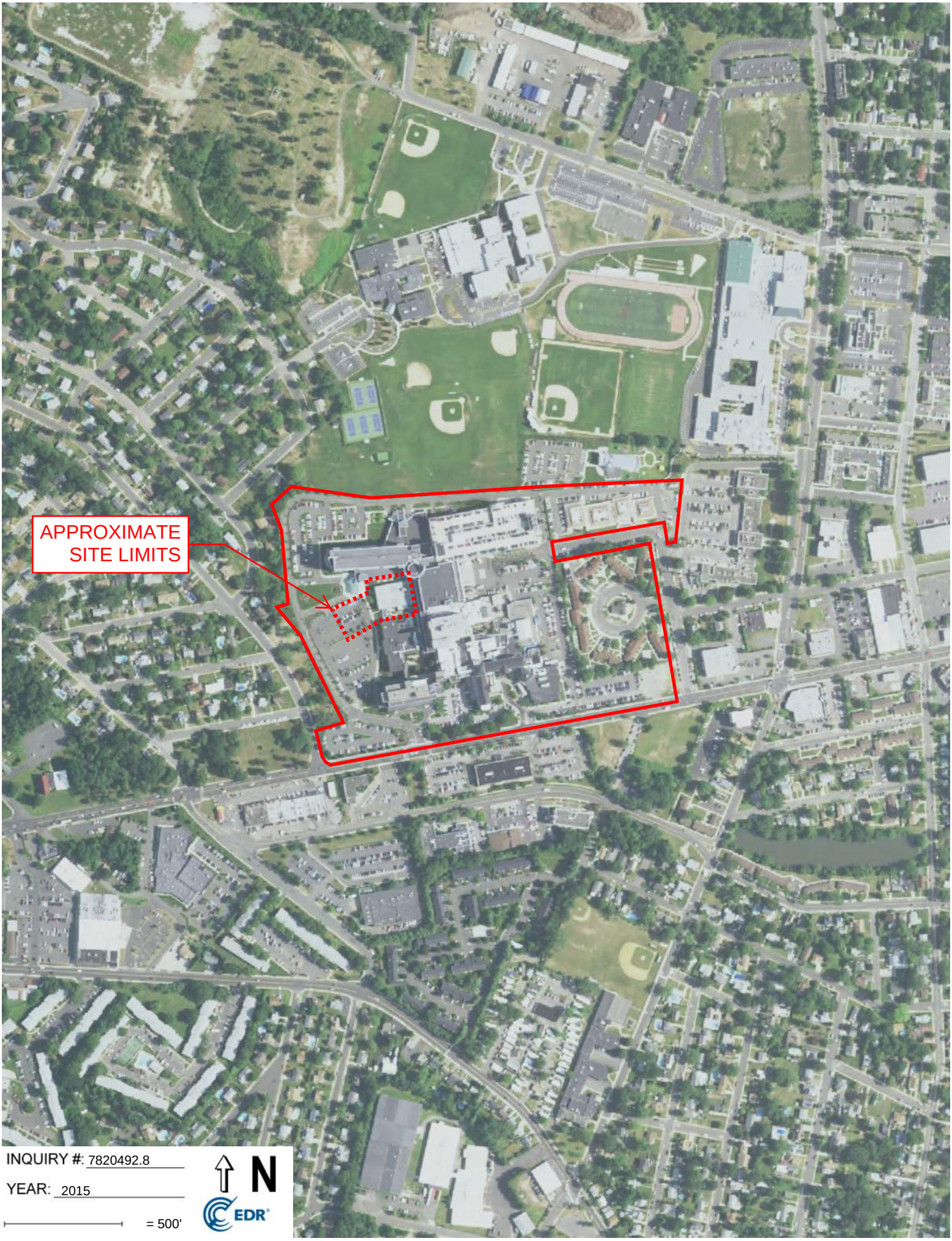
Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	*Scale*	*Details*	*Source*
2019	1"=500'	Flight Year: 2019	USDA/NAIP
2015	1"=500'	Flight Year: 2015	USDA/NAIP
2010	1"=500'	Flight Year: 2010	USDA/NAIP
2006	1"=500'	Flight Year: 2006	USDA/NAIP
1995	1"=500'	Acquisition Date: March 29, 1995	USGS/DOQQ
1985	1"=500'	Flight Date: March 16, 1985	USDA
1974	1"=500'	Flight Date: March 13, 1974	EDR Proprietary Aerial Viewpoint
1970	1"=500'	Flight Date: February 21, 1970	USGS
1963	1"=500'	Flight Date: May 13, 1963	USDA
1961	1"=500'	Flight Date: May 04, 1961	EDR Proprietary Aerial Viewpoint
1953	1"=500'	Flight Date: April 22, 1953	USGS
1951	1"=500'	Flight Date: February 25, 1951	EDR Proprietary Aerial Viewpoint
1940	1"=500'	Flight Date: April 06, 1940	EDR Proprietary Aerial Viewpoint
1931	1"=500'	Flight Date: January 01, 1931	EDR/EdrAerials

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.


APPROXIMATE
SITE LIMITS
INQUIRY #: 7820492.8
YEAR: 2019
= 500'
N
EDR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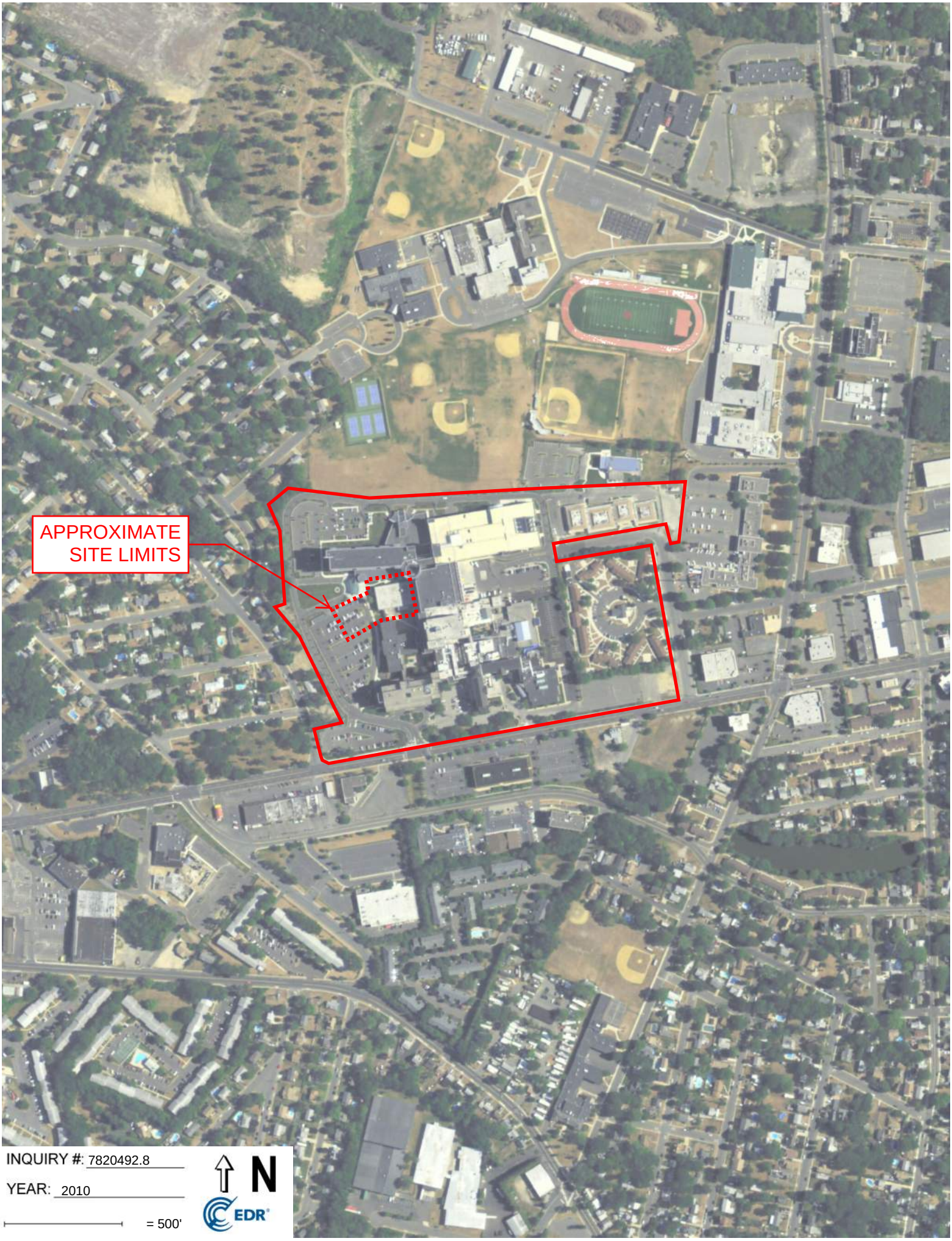
SITE LIMITS
INQUIRY #: 7820492.8
YEAR: 2015
= 500'
N
EDR


APPROXIMATE
SITE LIMITS
INQUIRY #: 7820492.8
YEAR: 2010
= 500'
N
EDR

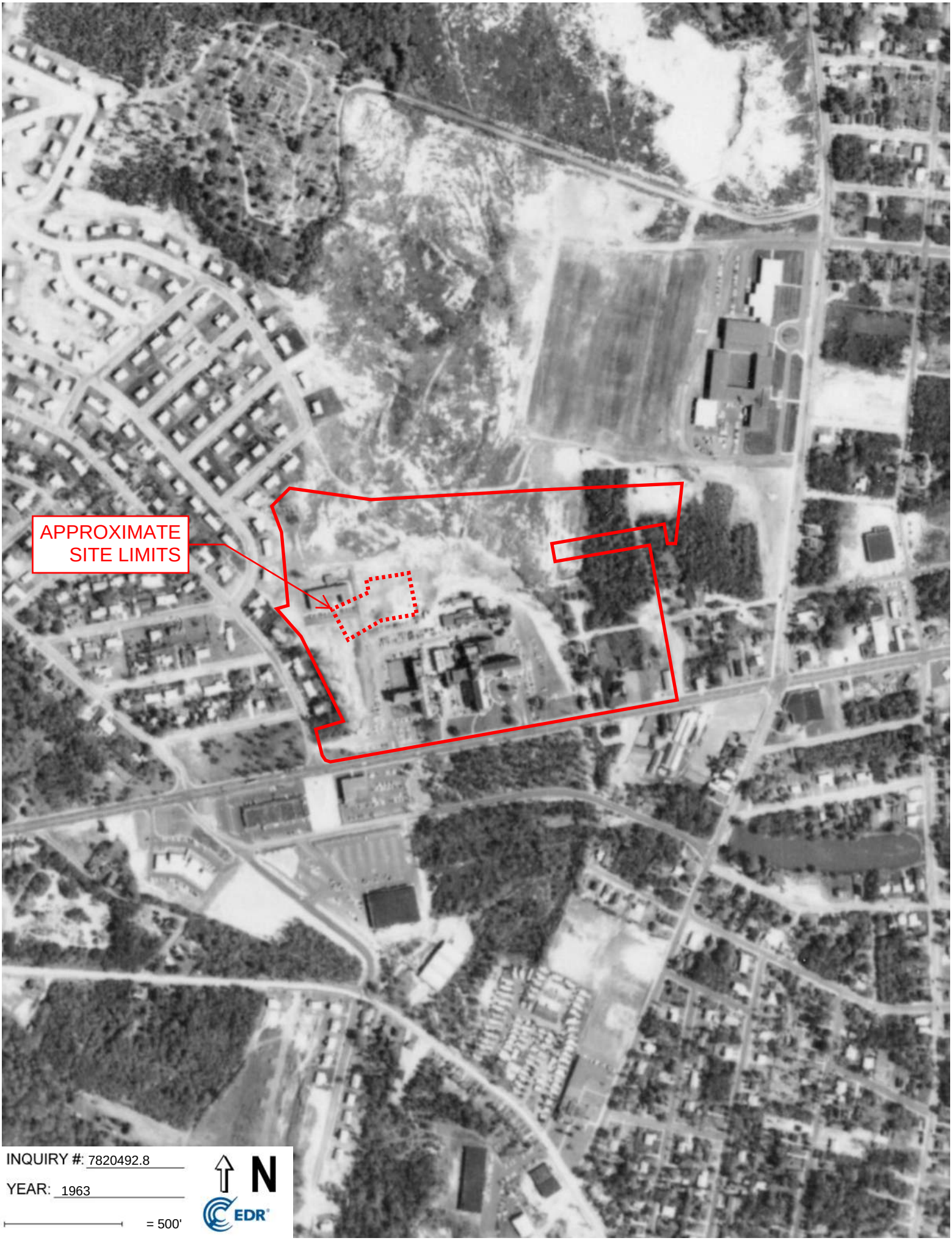

APPROXIMATE
SITE LIMITS
INQUIRY #: 7820492.8
YEAR: 2006
= 500'
N
EDR


APPROXIMATE
SITE LIMITS
INQUIRY #: 7820492.8
YEAR: 1995
= 500'
N
EDR


APPROXIMATE
SITE LIMITS
INQUIRY #: 7820492.8
YEAR: 1985
= 500'
N
EDR


APPROXIMATE
SITE LIMITS
INQUIRY #: 7820492.8
YEAR: 1974
= 500'
N
EDR


APPROXIMATE
SITE LIMITS
INQUIRY #: 7820492.8
YEAR: 1970
= 500'
N
EDR



INQUIRY #: 7820492.8

YEAR: 1963

= 500'

N

EDR

INQUIRY #: 7820492.8

YEAR: 1961

= 500'

N

EDR

INQUIRY #: 7820492.8

YEAR: 1953

= 500'

N

EDR

INQUIRY #: 7820492.8

YEAR: 1951

= 500'

N

EDR


APPROXIMATE
SITE LIMITS
INQUIRY #: 7820492.8
YEAR: 1940
= 500'
N
EDR

INQUIRY #: 7820492.8

YEAR: 1931

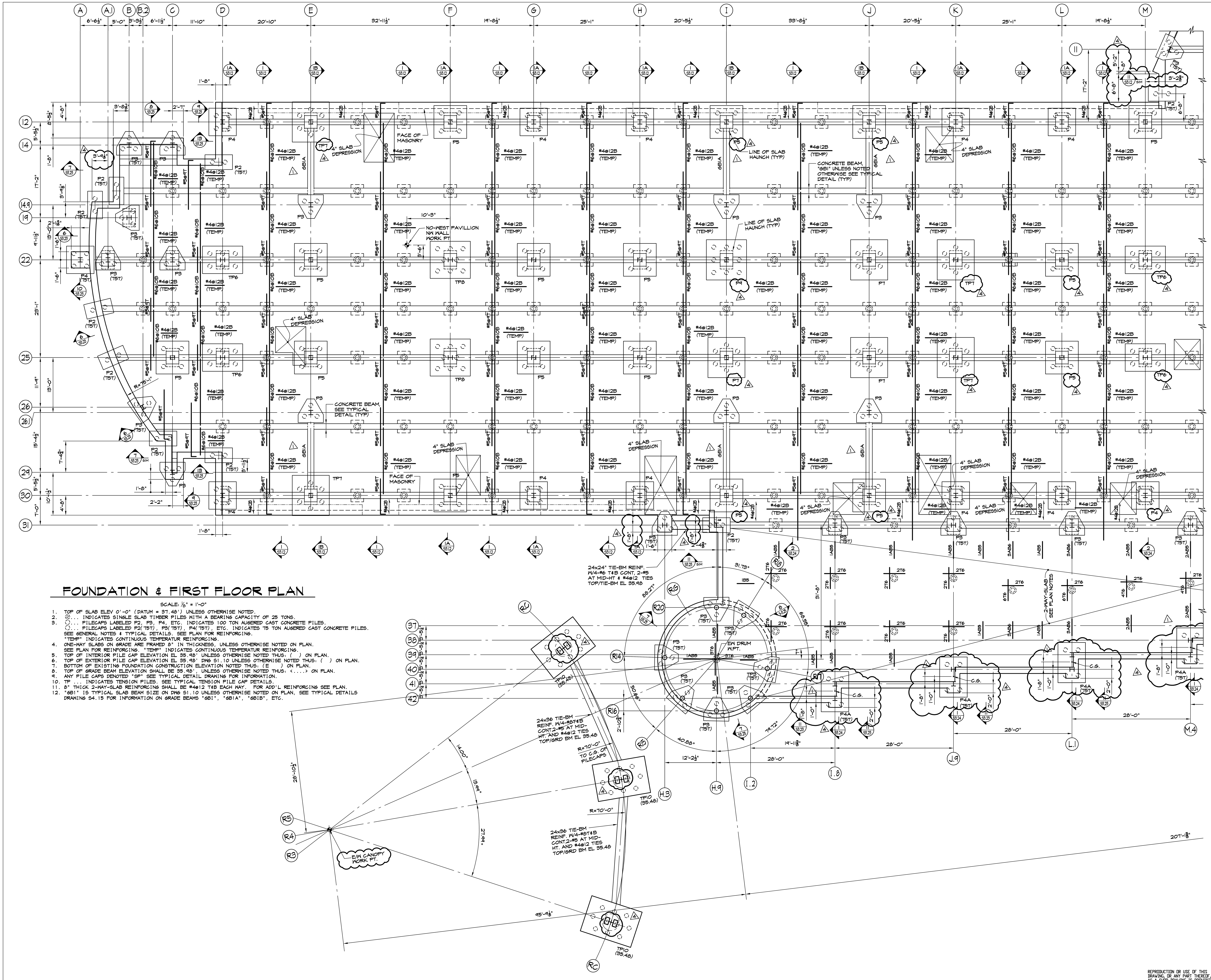
= 500'

N

EDR

ATTACHMENT C

Existing Foundation Drawings – D&T Tower and Northwest Tower



FOUNDATION & FIRST FLOOR PLAN

SCALE: 1/8" = 1'-0"

1. TOP OF SLAB ELEV 0'-0" (DATUM = 37.48') UNLESS OTHERWISE NOTED.
2. ◎... INDICATES SINGLE SLAB TIMBER PILES WITH A BEARING CAPACITY OF 25 TONS.
3. ◌... PILECAPS LABELED P2, P3, P4, ETC. INDICATES 100 TON AUGERED CAST CONCRETE PILES.
   ◌... PILECAPS LABELED P2(75T), P3(75T), P4(75T), ETC. INDICATES 75 TON AUGERED CAST CONCRETE PILES.
   SEE GENERAL NOTES & TYPICAL DETAILS. SEE PLAN FOR REINFORCING.
   "TEMP" INDICATES CONTINUOUS TEMPERATUR REINFORCING.
4. ONE-WAY SLABS ON GRADE ARE FRAMED 8" IN THICKNESS, UNLESS OTHERWISE NOTED ON PLAN. SEE PLAN FOR REINFORCING. "TEMP" INDICATES CONTINUOUS TEMPERATUR REINFORCING.
5. TOP OF INTERIOR PILE CAP ELEVATION EL 35.98' UNLESS OTHERWISE NOTED THUS: (   ) ON PLAN.
6. TOP OF EXTERIOR PILE CAP ELEVATION EL 35.98' DWG S1.10 UNLESS OTHERWISE NOTED THUS: (   ) ON PLAN.
7. BOTTOM OF EXISTING FOUNDATION CONSTRUCTION ELEVATION NOTED THUS: (E   ) ON PLAN.
8. TOP OF GRADE BEAM ELEVATION SHALL BE 35.98', UNLESS OTHERWISE NOTED THUS: <....> ON PLAN.
9. ANY PILE CAPS DENOTED "SP" SEE TYPICAL DETAIL DRAWING FOR INFORMATION.
10. TP ... INDICATES TENSION PILES. SEE TYPICAL TENSION PILE CAP DETAILS.
11. 8" THICK 2-WAY-SLAB REINFORCING SHALL BE #4@12 T&B EACH WAY. FOR ADD'L REINFORCING SEE PLAN.
12. "GB1" IS TYPICAL SLAB BEAM SIZE ON DWG S1.10 UNLESS OTHERWISE NOTED ON PLAN, SEE TYPICAL DETAILS DRAWING S4.15 FOR INFORMATION ON GRADE BEAMS "GB1", "GB1A", "GB1B", ETC.

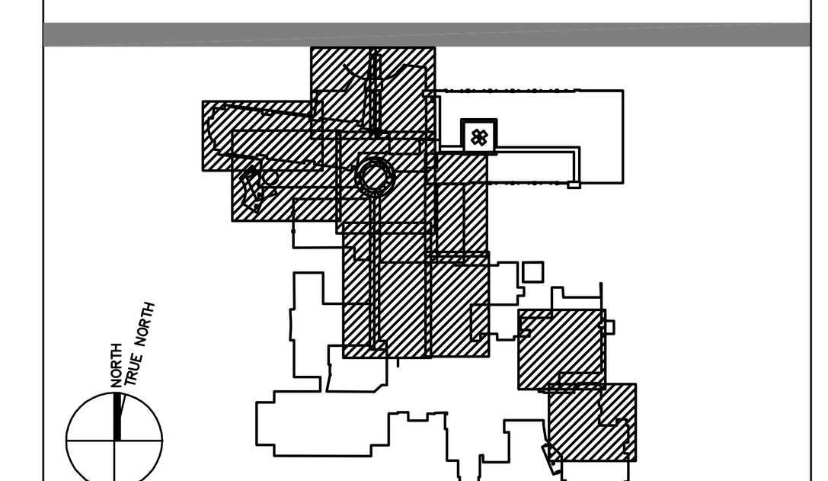
WHR ARCHITECTS

WHR ARCHITECTS, INC.
1111 LOUISIANA
26TH FLOOR
HOUSTON, TEXAS 77002
(713) 665-5665 FAX (713) 665-6213
WWW.WHRARCHITECTS.COM

NO.	DATE	DESCRIPTION
	09-19-05	ISSUE FOR DCA SD REVIEW
	12-21-05	DD PRICING
	01-13-06	REVISED DD
	03-15-06	PACKAGE No. 5 GARAGE-ISSUED FOR GMP
	03-22-06	PACKAGE No. 6 FOUNDATION-ISSUED FOR GMP
	05-01-06	BID PACKAGE No. 9
	05-09-06	REVISED FOUNDATION BID PACKAGE
	06-01-06	DCA ISSUE
	06-12-06	STRUCTURAL PRICING UPDATE
	06-26-06	ISSUED FOR GMP - B.P. #10
1	07-21-06	ADDENDUM #6
4	10-13-06	(VE) FOR NORTH-WEST TOWER

DI STASIO & VAN BUREN INC.
STRUCTURAL ENGINEERS
1160 ROUTE 22 WEST
MOUNTAINSIDE, NJ 07092
Tel (908) 688-7887 Fax (908) 6887960

NJ Cert. of Authorization No. GA 276710
James F. Loudon, PE NJ Cert. No. 28704
Paul P. Panzarino, PE NJ Cert. No. 42798



KEY PLAN

Jersey Shore University Medical Center
MEMBER OF THE MERIDIAN HEALTH FAMILY

ADDITIONS & RENOVATIONS

NEPTUNE, NEW JERSEY

FOUNDATION & FIRST FLOOR PLAN

Date: 06-26-2006
Architect of record: CHARLES H GRIFFIN
State: NJ
Registration no.: 21AI01557600

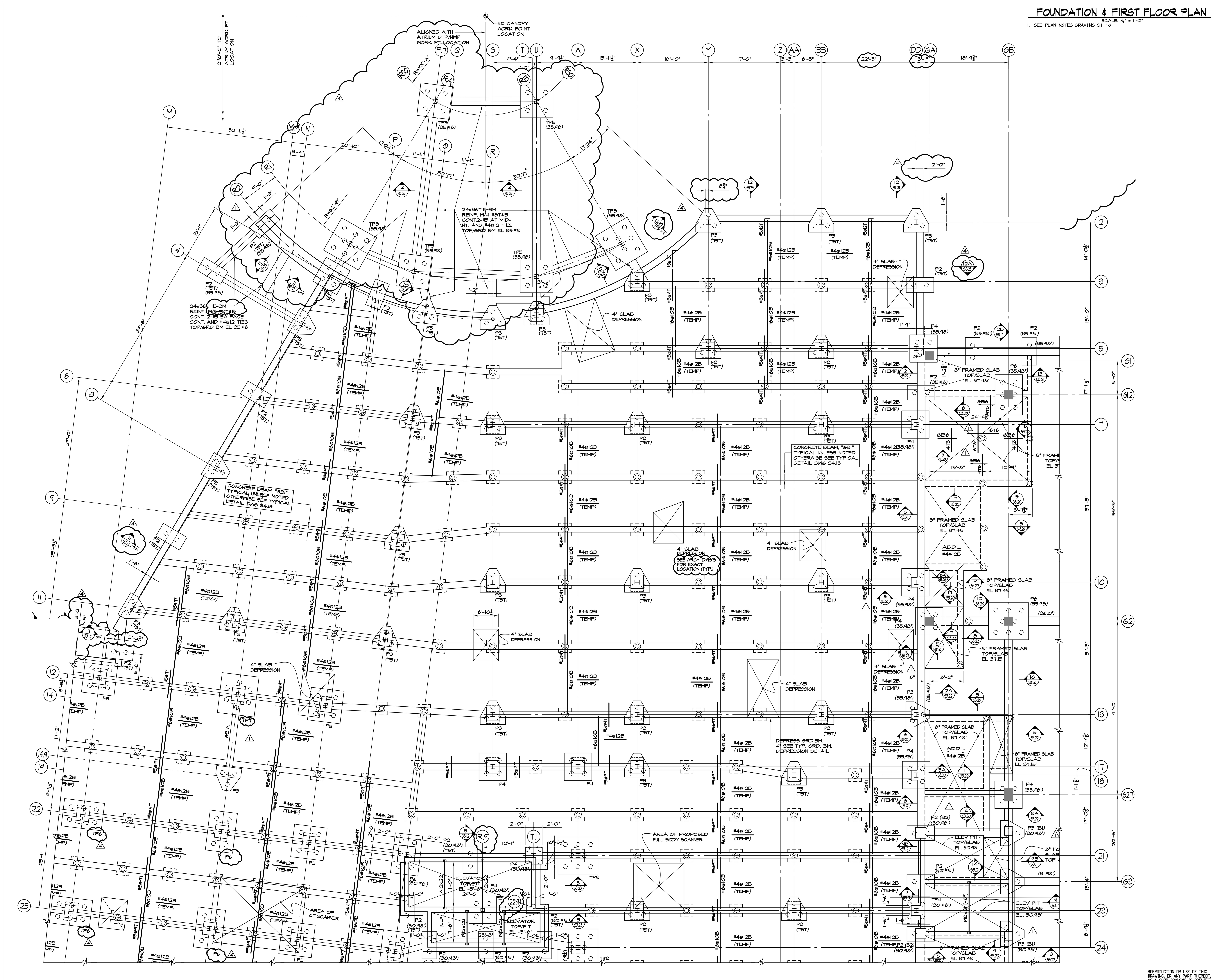
JOB NO.: H04043-00
PHASE: DD #3
DATE: 06/26/06
DRAWING NO: S1.10

04-077

FOUNDATION & FIRST FLOOR PLAN

SCALE: 1/8" = 1'-0"

1. SEE PLAN NOTES DRAWING S1.10



WHR ARCHITECTS

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HOUSTON, TEXAS 77002
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WWW.WHRARCHITECTS.COM

NO.	DATE	DESCRIPTION
	09-19-05	ISSUE FOR DCA SD REVIEW
	12-21-05	DD PRICING
	01-13-06	REVISED DD
	03-15-06	PACKAGE No. 5 GARAGE-ISSUED FOR GMP
	03-22-06	PACKAGE No. 6 FOUNDATION-ISSUED FOR GMP
	05-01-06	BID PACKAGE No. 9
	05-09-06	REVISED FOUNDATION BID PACKAGE
	06-01-06	DCA ISSUE
	06-12-06	STRUCTURAL PRICING UPDATE
	06-26-06	ISSUED FOR GMP - B.P. #10
1	07-21-06	ADDENDUM #6
4	10-13-06	(VE) FOR NORTH-WEST TOWER

DI STASIO & VAN BUREN INC.
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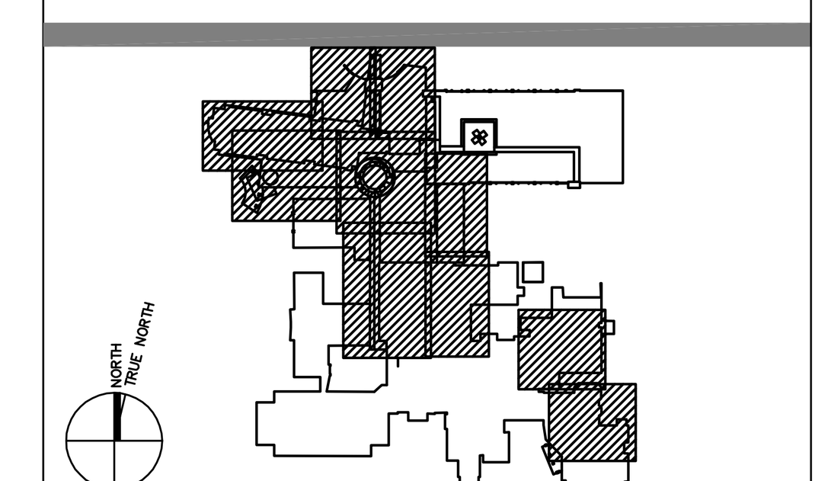
1160 ROUTE 22 WEST
MOUNTAINSIDE, NJ 07092
Tel (908) 688-7887 Fax (908) 6887960

NJ Cert. of Authorization No. GA 276710
James F. Loudon, PE NJ Cert. No. 28704
Paul P. Panzarino, PE NJ Cert. No. 42798



KEY PLAN

Jersey Shore University Medical Center
MEMBER OF THE MERIDIAN HEALTH FAMILY

ADDITIONS & RENOVATIONS

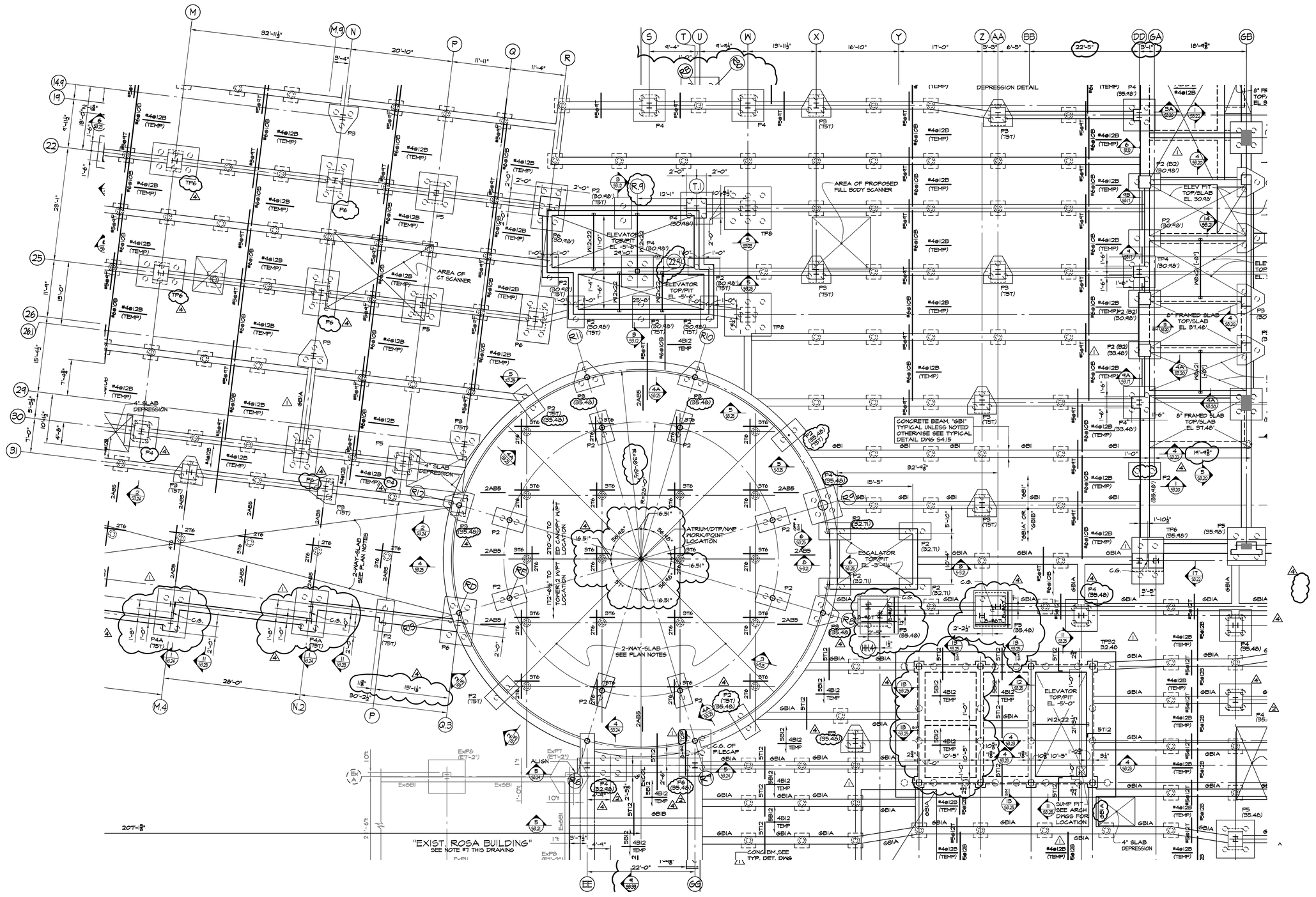
NEPTUNE, NEW JERSEY

FOUNDATION & FIRST FLOOR PLAN

Date: 06-26-2006
Architect of record: CHARLES H GRIFFIN
State: NJ
Registration no.: 21AI01557600

JOB NO.: H04043-00
PHASE: DD #3
DATE: 06/26/06
DRAWING NO: S1.11

04-077



FOUNDATION & FIRST FLOOR PLAN

SCALE: 1/8" = 1'-0"

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2. ⊘... INDICATES SINGLE SLAB TIMBER PILES WITH A BEARING CAPACITY OF 25 TONS.
3. ○... PILECAPS LABELED P2, P3, P4, ETC. INDICATES 100 TON AUGERED CAST CONCRETE PILES.
   ○... PILECAPS LABELED P2(75T), P3(75T), P4(75T), ETC. INDICATES 75 TON AUGERED CAST CONCRETE PILES.
   SEE GENERAL NOTES & TYPICAL DETAILS. SEE PLAN FOR REINFORCING.
   "TEMP" INDICATES CONTINUOUS TEMPERATURE REINFORCING.
4. ONE-WAY SLABS ON GRADE ARE FRAMED 8" IN THICKNESS, UNLESS OTHERWISE NOTED ON PLAN.
   SEE PLAN FOR REINFORCING "TEMP" INDICATES CONTINUOUS TEMPERATURE REINFORCING.
5. TOP OF INTERIOR PILE CAP ELEVATION EL 35.48' UNLESS OTHERWISE NOTED THUS: ( ) ON PLAN.
6. TOP OF EXTERIOR PILE CAP ELEVATION EL 35.48' DNG 51.12 UNLESS OTHERWISE NOTED THUS: ( ) ON PLAN.
7. TOP OF EXISTING FOUNDATION CONSTRUCTION ELEVATION NOTED THUS: (E) ON PLAN. ALL EXISTING ELEVATIONS GIVEN ON FONDATION PLAN FOR "ROSA" & "BOOKER" BUILDINGS ARE 7½" HIGHER IN RELATIONSHIP TO THE DATUM EL (12'-4") GIVEN AT THE EXISTING "TOWER" BUILDING. (IE: 12'-4"± IS EQUAL TO 12'-11½"±) IN "BOOKER" & "ROSA" BUILDINGS
8. TOP OF GRADE BEAM ELEVATION SHALL BE 35.48', UNLESS OTHERWISE NOTED THUS: <....> ON PLAN.
9. ANY PILE CAPS DENOTED 'SP' SEE TYPICAL DETAIL DRAWING FOR INFORMATION.
10. TP ... INDICATES TENSION PILES. SEE TYPICAL TENSION PILE CAP DETAILS.
11. 8" THICK 2-WAY-SLAB REINFORCING SHALL BE #4@12 T&B EACH WAY. FOR ADD'L REINFORCING SEE PLAN.
12. "6B1" IS TYPICAL SLAB BEAM SIZE ON DNG 51.12 UNLESS OTHERWISE NOTED ON PLAN, SEE TYPICAL DETAILS DRAWING S4.15 FOR INFORMATION ON GRADE BEAMS "6B1","6B1A","6B1B",ETC.

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4	10-13-06	(VE) FOR NORTH-WEST TOWER

DI STASIO & VAN BUREN INC.
STRUCTURAL ENGINEERS
100 ROUTE 22 WEST
MOUNTAINSIDE, NJ 07092
Tel (908) 688-7887 Fax (908) 6887960

NJ Cert. of Authorization No. GA 276710
James F. Loudon, PE NJ Cert. No. 28704
Paul P. Panzarino, PE NJ Cert. No. 42798

KEY PLAN

Jersey Shore University Medical Center
MEMBER OF THE MERIDIAN HEALTH FAMILY

ADDITIONS & RENOVATIONS

NEPTUNE, NEW JERSEY

FOUNDATION & FIRST FLOOR PLAN

Date: 06-26-2006
Architect of record:
CHARLES H GRIFFIN
State: NJ
Registration no.: 21AI01557600

JOB NO.: H04043-00
PHASE: DD #3
DATE: 06/26/06

DRAWING NO:
S1.12

04-077

P:\Jobs\2004 Jobs\04-077 (Jersshore)\Drawings\Structural\S1_1FND_keyplan_1.dwg Oct 13 2006 3:54pm

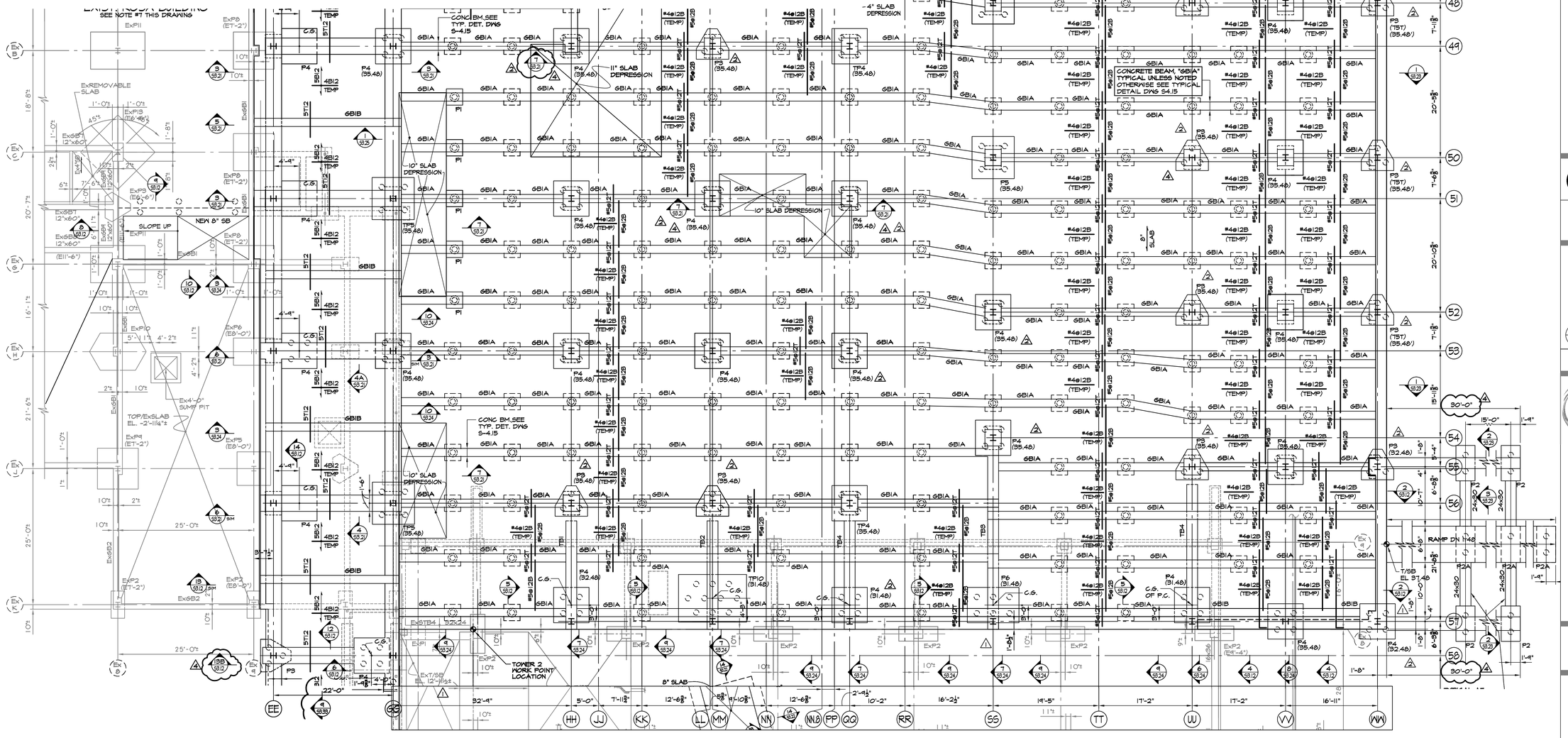
GRADE BEAM SCHEDULE

MARK	SIZE b x d	REINFORCING	REMARKS	STIRRUPS SPACED FROM EACH END
TB1	36x36	10-#11TOP CONT 10-#9 BOTT. CONT	EXTEND TOP & BOTT BARS TO END OF CANTIL & HOOK	#5 @6" IN CANT #4 □ @12 IN SPAN
TB2	42x48	8-#18 TOP CONT 8-#11 BOTT. CONT	EXTEND TOP & BOTT BARS TO END OF CANTIL & HOOK	#5 @5" IN CANT #5 □ @12 IN SPAN
TB3	42x48	10-#14 TOP CONT 10-#9 BOTT. CONT	EXTEND TOP & BOTT BARS TO END OF CANTIL & HOOK	#5 @5" IN CANT #4 □ @12 IN SPAN
TB4	42x48	10-#11TOP CONT 10-#9 BOTT. CONT	EXTEND TOP & BOTT BARS TO END OF CANTIL & HOOK	#4 @5" IN CANT #4 □ @12 IN SPAN

FOUNDATION & FIRST FLOOR PLAN

SCALE: 1/8" = 1'-0"

1. TOP OF SLAB ELEV 0'-0" (DATUM = 37.48') UNLESS OTHERWISE NOTED.
2. ⊗... INDICATES SINGLE SLAB TIMBER PILES WITH A BEARING CAPACITY OF 25 TONS.
3. ○... PILECAPS LABELED P2, P3, P4, ETC. INDICATES 100 TON AUGERED CAST CONCRETE PILES.
   ○... PILECAPS LABELED P2(T57), P3(T57), P4(T57), ETC. INDICATES 75 TON AUGERED CAST CONCRETE PILES.
   SEE GENERAL NOTES & TYPICAL DETAILS. SEE PLAN FOR REINFORCING.
   'TEMP' INDICATES CONTINUOUS TEMPERATURE REINFORCING.
4. ONE-WAY SLABS ON GRADE ARE FRAMED 8" IN THICKNESS, UNLESS OTHERWISE NOTED ON PLAN.
   SEE PLAN FOR REINFORCING 'TEMP' INDICATES CONTINUOUS TEMPERATURE REINFORCING.
5. TOP OF INTERIOR PILE CAP ELEVATION EL 35.48' UNLESS OTHERWISE NOTED THUS: ( ) ON PLAN.
6. TOP OF EXTERIOR PILE CAP ELEVATION EL 35.48' DNG S1.13 UNLESS OTHERWISE NOTED THUS: ( ) ON PLAN.
7. TOP OF EXISTING FOUNDATION CONSTRUCTION ELEVATION NOTED THUS: (E) ON PLAN. ALL EXISTING ELEVATIONS GIVEN ON FONDATION PLAN FOR 'ROSA' & 'BOOKER' BUILDINGS ARE 7½" HIGHER IN RELATIONSHIP TO THE DATUM EL (12'-4") GIVEN AT THE EXISTING 'TOWER' BUILDING. (IE: 12'-4"± IS EQUAL TO 12'-11½"±) IN 'BOOKER' & 'ROSA' BUILDINGS
8. TOP OF GRADE BEAM ELEVATION SHALL BE 35.48', UNLESS OTHERWISE NOTED THUS: <....> ON PLAN.
9. ANY PILE CAPS DENOTED "SP" SEE TYPICAL DETAIL DRAWING FOR INFORMATION.
10. TP ... INDICATES TENSION PILES. SEE TYPICAL TENSION PILE CAP DETAILS.
11. "GB1A" IS TYPICAL SLAB BEAM SIZE ON DWG. S1.13 UNLESS OTHERWISE NOTED ON PLAN, SEE TYPICAL DETAILS DRAWING S4.15 FOR INFORMATION ON GRADE BEAMS "GB1", "GB1A", GB1B", ETC.
12. SEE TYPICAL DETAIL DNGS. S4.10 & S4.12 FOR DEPRESSED BEAM AND SLABS.



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Registration no.: 21AI01557600

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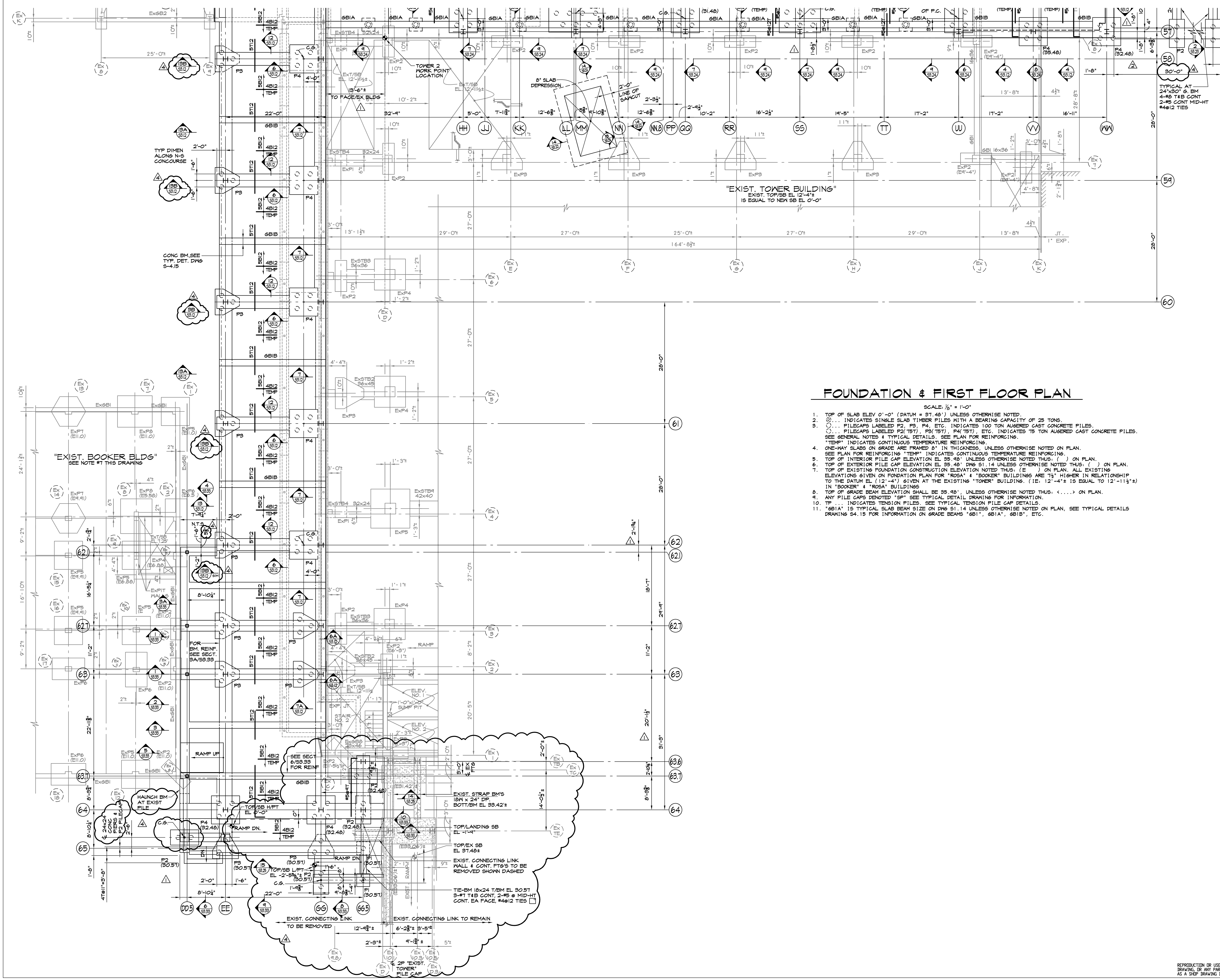
DRAWING NO: S1.13

P:\Jobs\2004 Jobs\04-077 (Jamsheed)\Drawings\Structural\S1_1_FND_Layout.dwg, Aug 02 19 2006 9:55pm

04-077



FOUNDATION & FIRST FLOOR PLAN

SCALE: 1/8" = 1'-0"

1. TOP OF SLAB ELEV 0'-0" (DATUM = 37.48') UNLESS OTHERWISE NOTED.
2. ◎... INDICATES SINGLE SLAB TIMBER PILES WITH A BEARING CAPACITY OF 25 TONS.
3. ◌... PILECAPS LABELED P2, P3, P4, ETC. INDICATES 100 TON AUGERED CAST CONCRETE PILES.
   ◌... PILECAPS LABELED P2(75T), P3(75T), P4(75T), ETC. INDICATES 75 TON AUGERED CAST CONCRETE PILES.
   SEE GENERAL NOTES & TYPICAL DETAILS. SEE PLAN FOR REINFORCING.
   "TEMP" INDICATES CONTINUOUS TEMPERATURE REINFORCING.
4. ONE-WAY SLABS ON GRADE ARE FRAMED 8" IN THICKNESS, UNLESS OTHERWISE NOTED ON PLAN.
   SEE PLAN FOR REINFORCING "TEMP" INDICATES CONTINUOUS TEMPERATURE REINFORCING.
5. TOP OF INTERIOR PILE CAP ELEVATION EL 35.98' UNLESS OTHERWISE NOTED THUS: ( ) ON PLAN.
6. TOP OF EXTERIOR PILE CAP ELEVATION EL 35.48' DWG S1.14 UNLESS OTHERWISE NOTED THUS: ( ) ON PLAN.
7. TOP OF EXISTING FOUNDATION CONSTRUCTION ELEVATION NOTED THUS: (E) ON PLAN. ALL EXISTING ELEVATIONS GIVEN ON FONDATION PLAN FOR "ROSA" & "BOOKER" BUILDINGS ARE 7½" HIGHER IN RELATIONSHIP TO THE DATUM EL (12'-4") GIVEN AT THE EXISTING "TOWER" BUILDING. (IE: 12'-4"± IS EQUAL TO 12'-11½"±) IN "BOOKER" & "ROSA" BUILDINGS
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10. TP ... INDICATES TENSION PILES. SEE TYPICAL TENSION PILE CAP DETAILS.
11. "GB1A" IS TYPICAL SLAB BEAM SIZE ON DWG S1.14 UNLESS OTHERWISE NOTED ON PLAN, SEE TYPICAL DETAILS DRAWING S4.15 FOR INFORMATION ON GRADE BEAMS "GB1", GB1A", GB1B", ETC.

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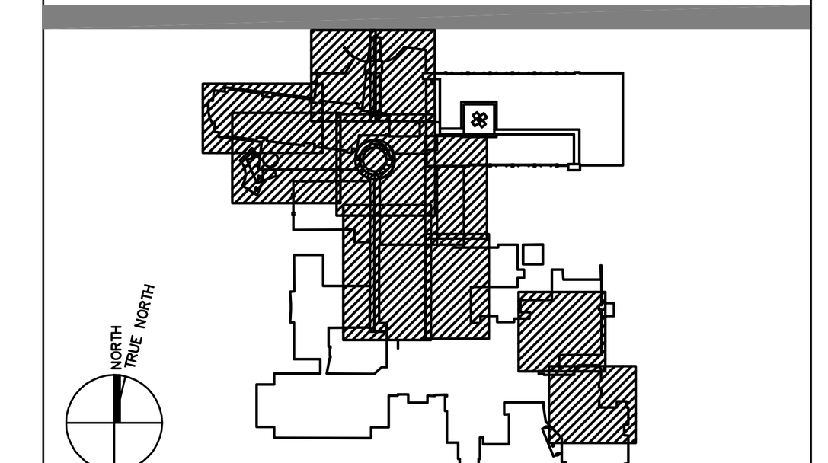

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NEPTUNE, NEW JERSEY

FOUNDATION & FIRST FLOOR PLAN

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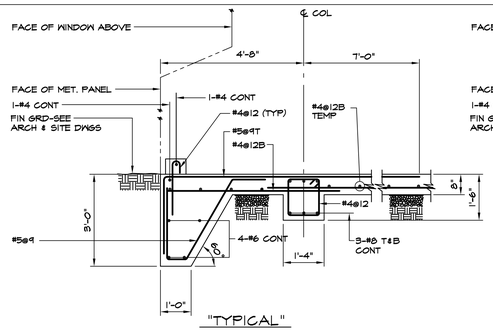
Architect of record: CHARLES H GRIFFIN
State: NJ
Registration no.: 21AI01557600

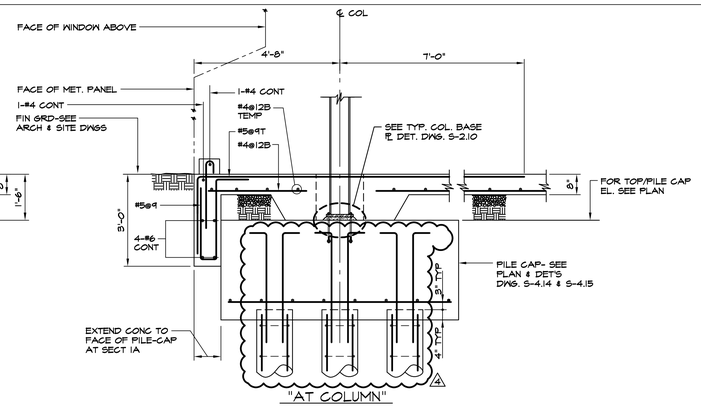
JOB NO.: H04043-00
PHASE: DD #3
DATE: 06/26/06
DRAWING NO: S1.14



"TYPICAL"

SECTION 1

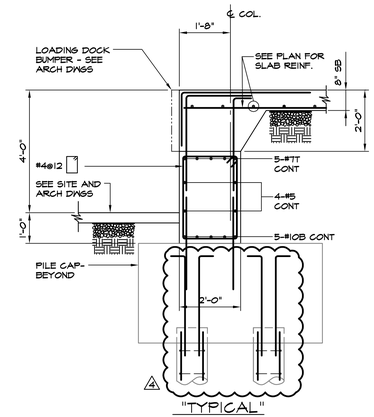
SCALE: ½" =1'-0"



"AT COLUMN"

SECTION 1A

SCALE: ½" =1'-0"



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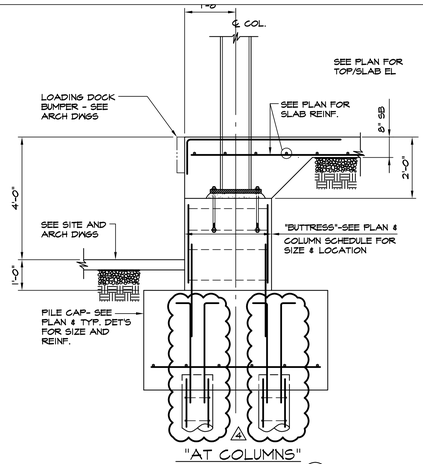
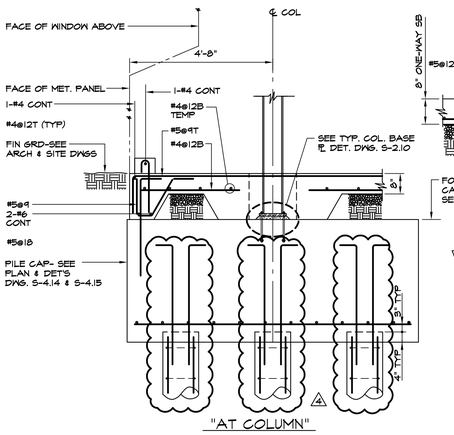


"AT COLUMNS"

SECTION 2

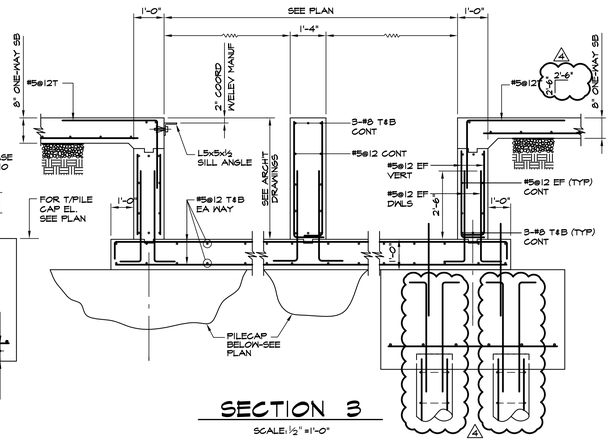
SCALE: ½" = 1'-0"



"AT COLUMN"

SECTION 1B

SCALE: ½" =1'-0"



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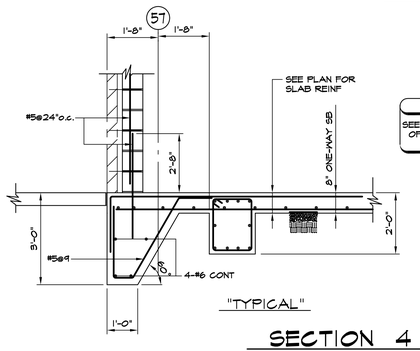

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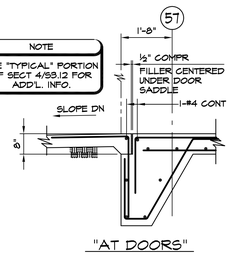
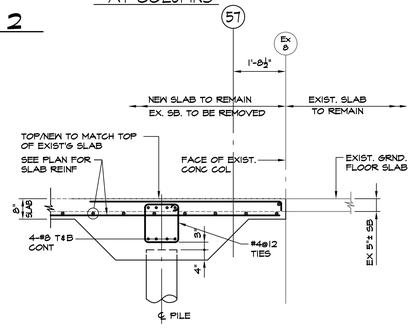


"AT DOORS"

SECTION 4

SCALE: ½" =1'-0"



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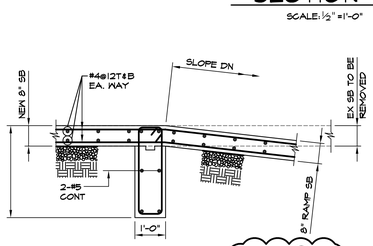

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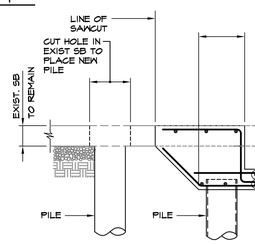

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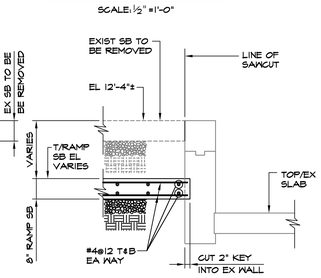

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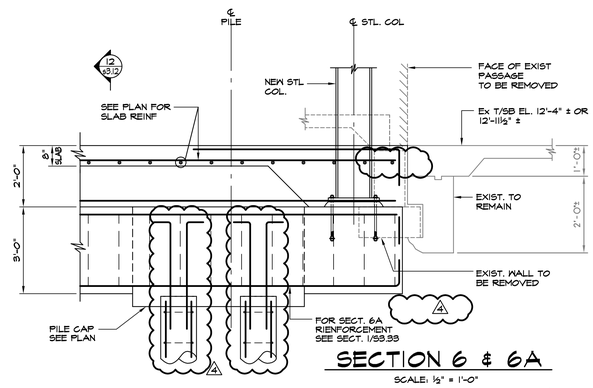
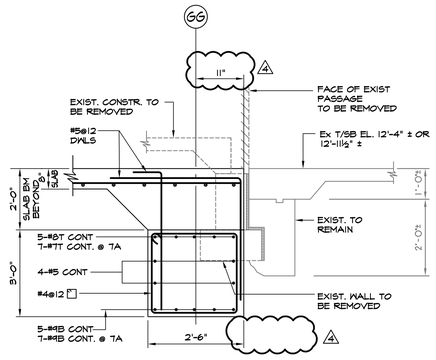


SECTION 6 & 6A

SCALE: ½" = 1'-0"



SECTION 7 & 7A

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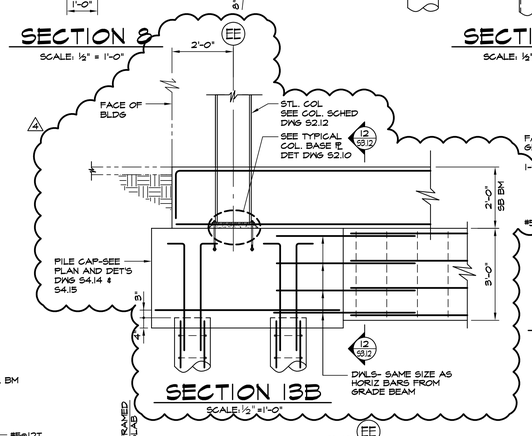

SECTION 13B

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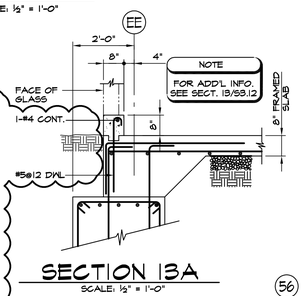
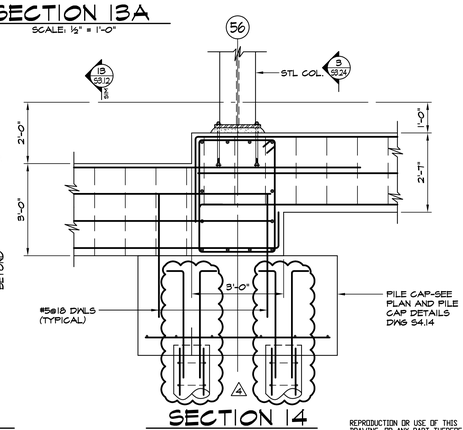


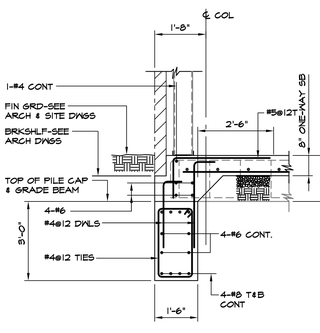
SECTION 13A

SCALE: ½" = 1'-0"

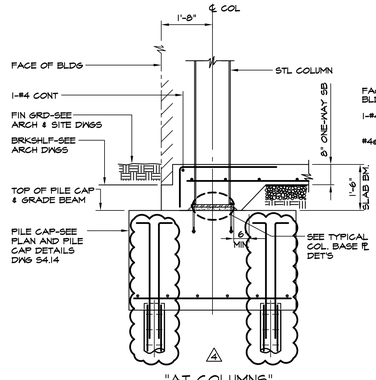


SECTION 14

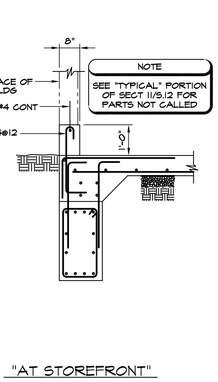
SCALE: ½" = 1'-0"



"TYPICAL"



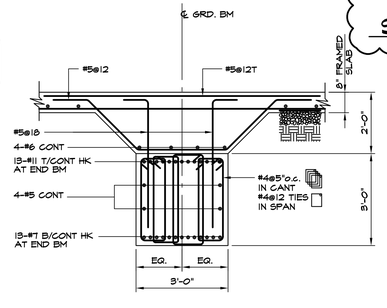
"AT COLUMNS"



"AT STOREFRONT"

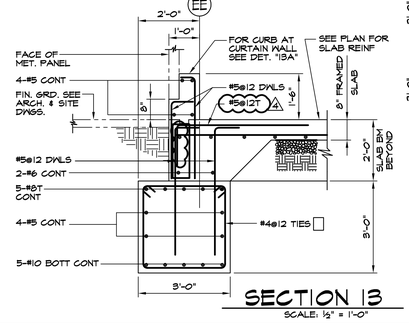
SECTION 11

SCALE: ½" =1'-0"



SECTION 12

SCALE: ½" = 1'-0"



SECTION 13

SCALE: ½" = 1'-0"

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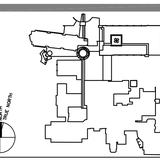

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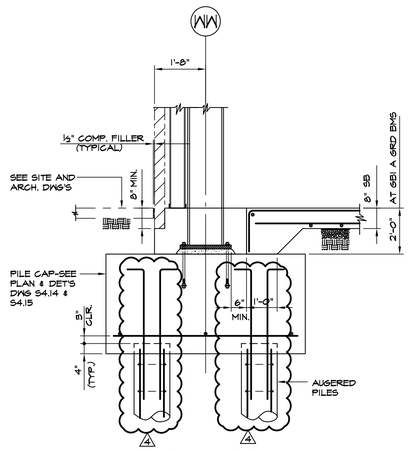
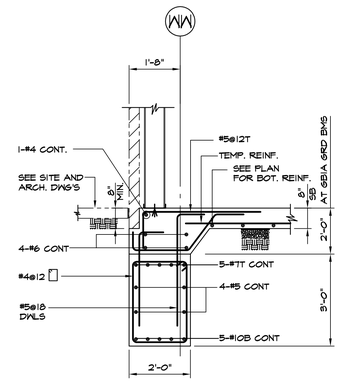
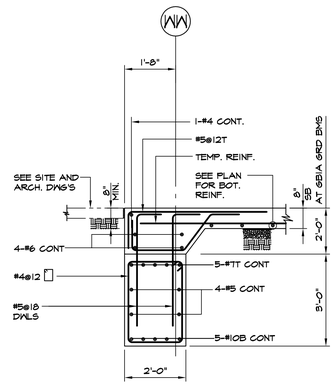
DRAWING NO:
S3.12



"AT COLUMNS"



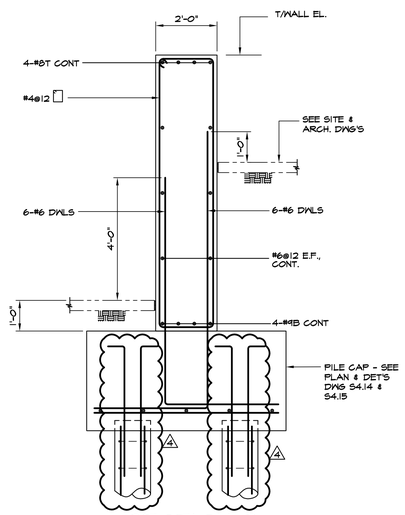
"BETW LOADING DOCKS DOORS"



" AT LOADING DOCK"

S E C T I O N 1

SCALE: ½" = 1'-0"



SECTION 2

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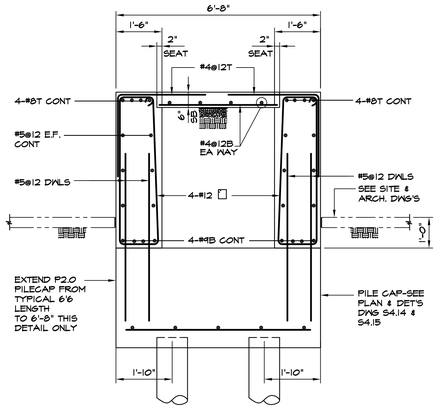

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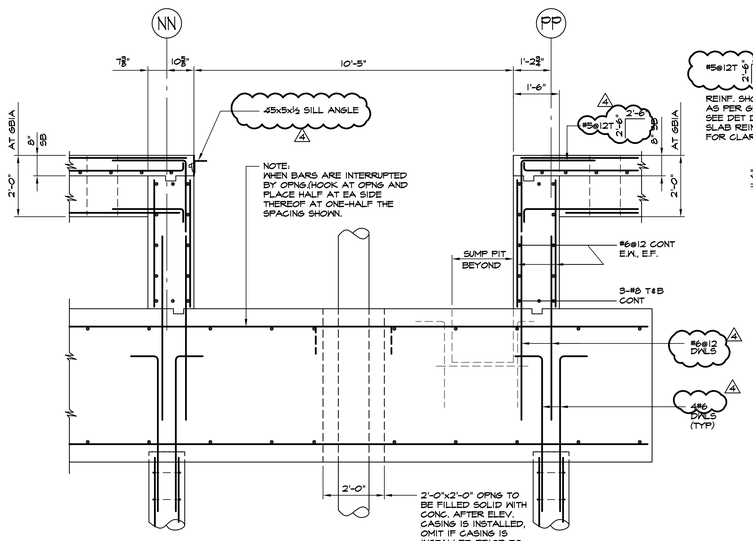

SECTION 4

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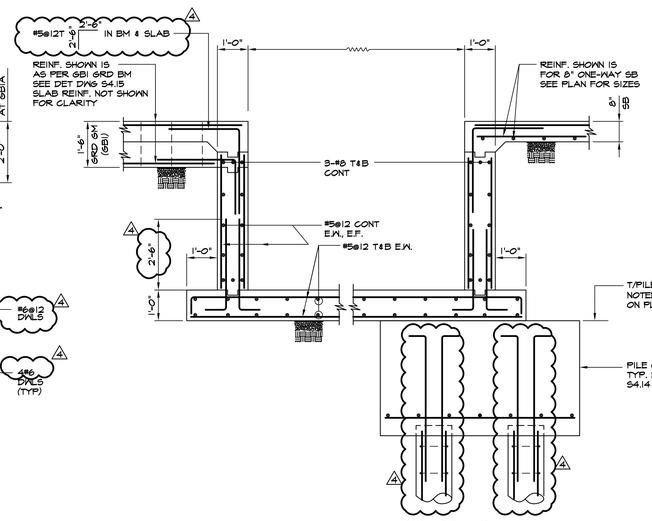

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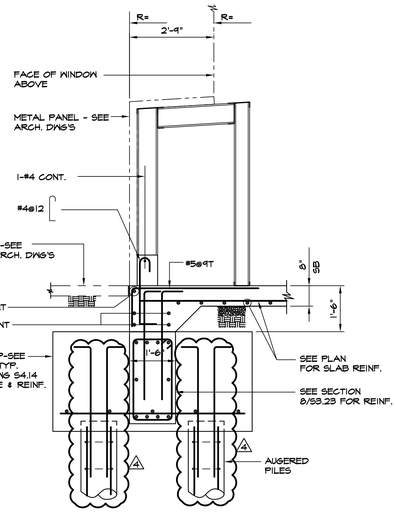

SECTION 6

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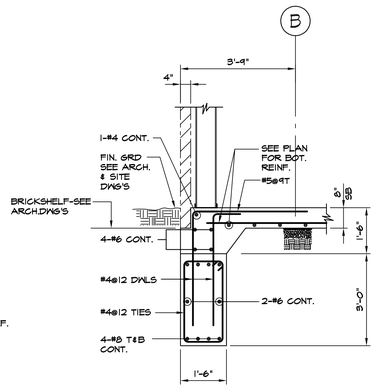

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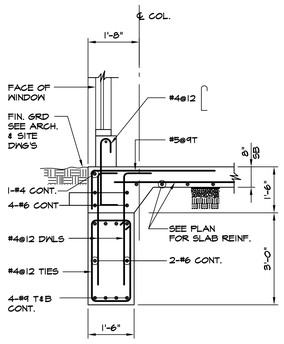

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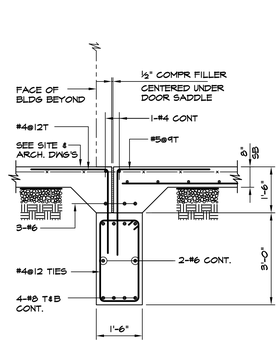

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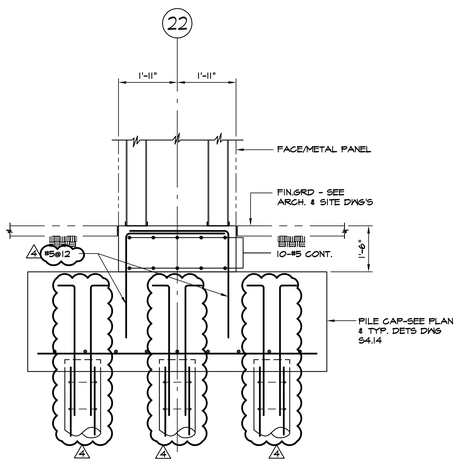

SECTION 10

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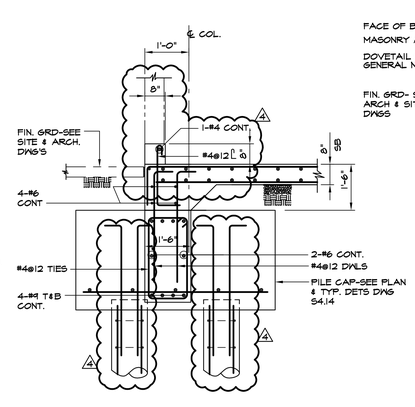

SECTION 11

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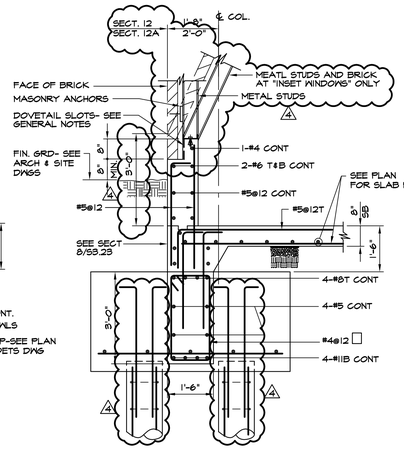
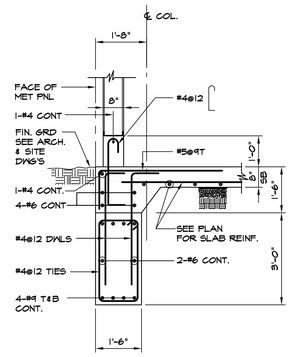


SECTION 12

SCALE: ½" = 1'-0"



SECTION 13

SCALE: ½" = 1'-0"

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	01-13-06	REVISED DD
	03-15-06	PACKAGE No. 5 GARAGE-ISSUED FOR GMP
	03-22-06	PACKAGE No. 6 FOUNDATION-ISSUED FOR GMP
	05-01-06	BID PACKAGE No. 9
	05-09-06	REVISED FOUNDATION BID PACKAGE
	06-01-06	DCA ISSUE
	06-12-06	STRUCTURAL PRICING UPDATE
	06-26-06	ISSUED FOR GMP - B.P. #10
1	07-21-06	ADDENDUM #6
2	10-13-06	(VE) FOR NORTH-WEST TOWER

DI STASIO & VAN BUREN INC.
STRUCTURAL ENGINEERS
1360 ROUTE 22 WEST
MOUNTAINSIDE, NJ 07092
Tel (908) 688-7887 Fax (908) 6887960

NJ Cert. of Authorization No. GA 2767I0
James F. Loudon, PE NJ Cert. No. 28704
Paul P. Panzarino, PE NJ Cert. No. 42798

KEY PLAN

Jersey Shore University Medical Center
MEMBER OF THE MERIDIAN HEALTH FAMILY

ADDITIONS & RENOVATIONS

NEPTUNE, NEW JERSEY

SECTION 14

Date: 06-26-2006
Architect of record:
CHARLES H GRIFFIN
State: NJ
Registration no.: 21AI01557600

JOB NO.: H04043-00
PHASE: DD #3
DATE: 06/26/06

DRAWING NO: S3.23

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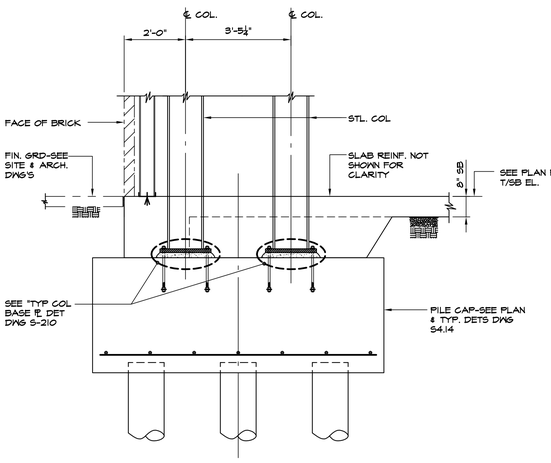
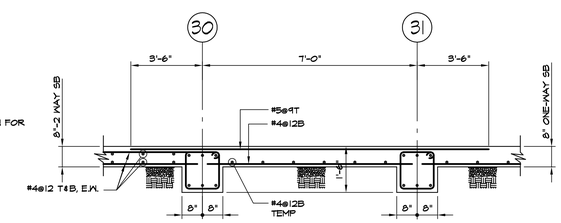
04-077



SECTION 1
SCALE: ½" = 1'-0"



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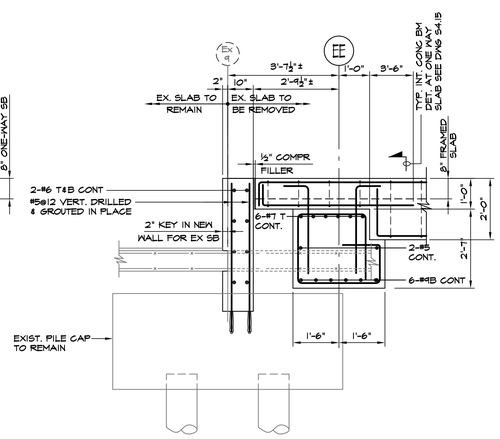
SCALE: ½" = 1'-0"



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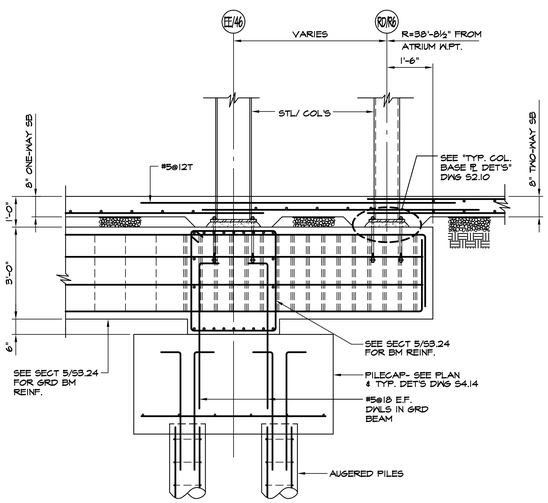
SCALE: ½" = 1'-0"



SECTION 4
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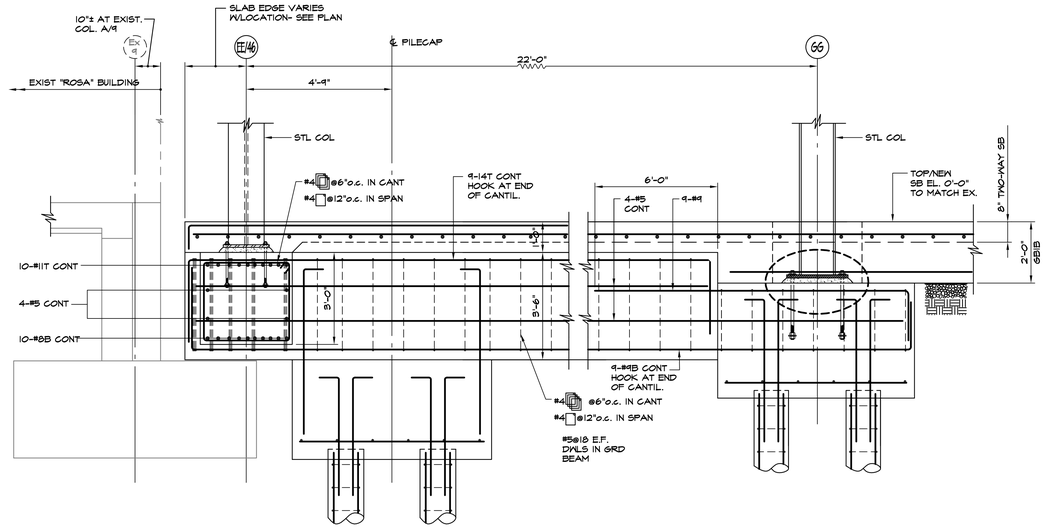
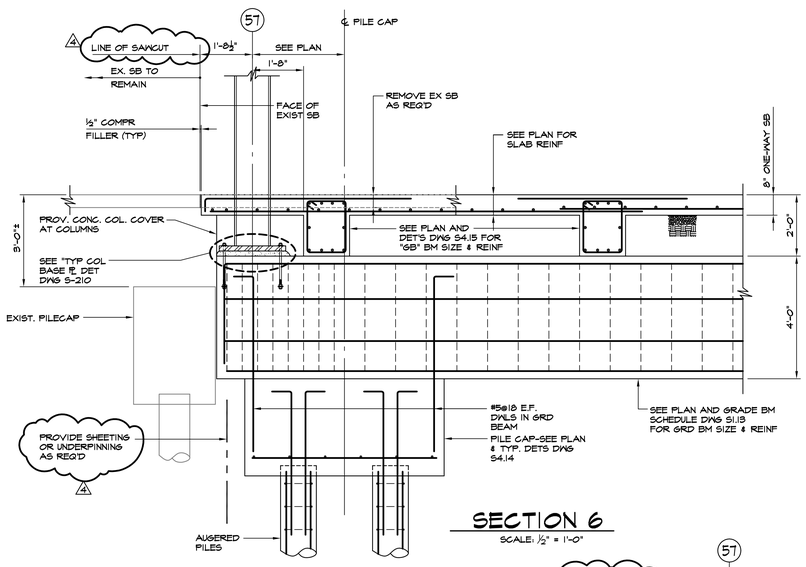


SECTION 5
SCALE: ½" = 1'-0"



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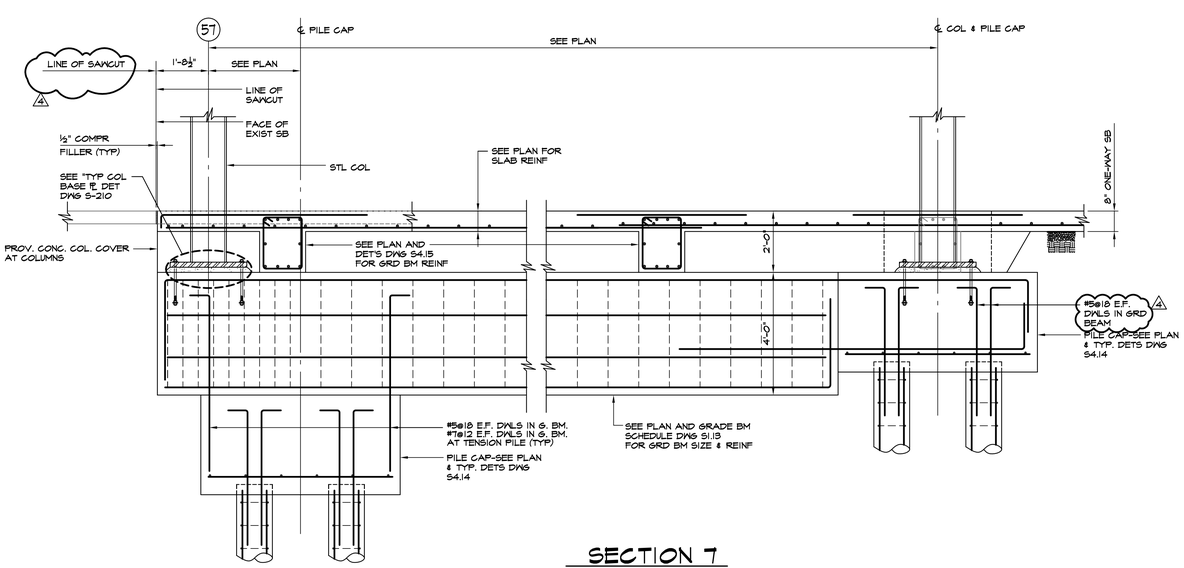

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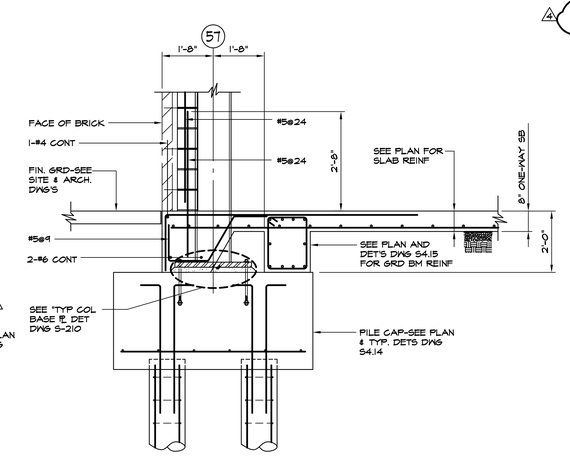

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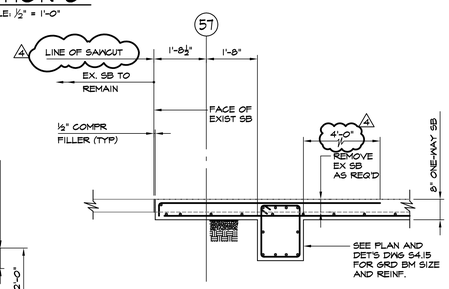
SCALE: ½" = 1'-0"



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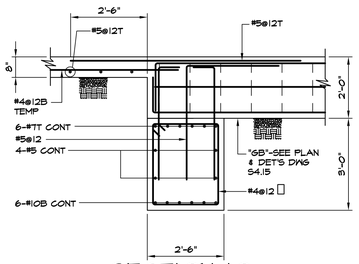

SECTION 10
SCALE: ½" = 1'-0"

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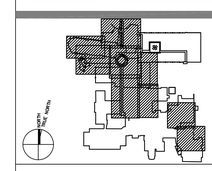
NJ Cert. of Authorization No. GA 276710
James F. Loudon, PE NJ Cert. No. 28704
Paul P. Panzarino, PE NJ Cert. No. 42798



KEY PLAN

Jersey Shore University Medical Center
MEMBER OF THE MERIDIAN HEALTH FAMILY

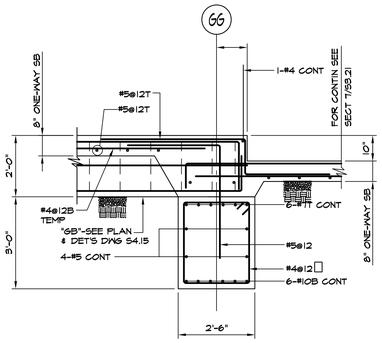
ADDITIONS & RENOVATIONS

NEPTUNE, NEW JERSEY

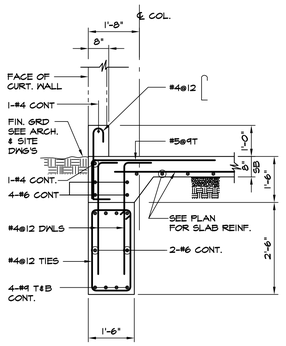
SECTION 15

Date: 06-26-2006
Architect of record:
CHARLES H GRIFFIN
State: NJ
Registration no.: 21AI01557600

JOB NO.: H04043-00	DRAWING NO:
PHASE: DD #3	S3.24
DATE: 06/26/06	



SECTION 1
SCALE: ½" = 1'-0"



SECTION 2
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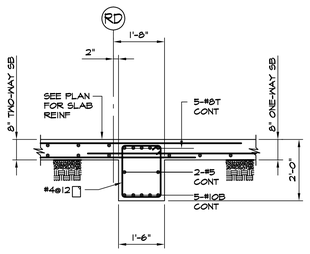

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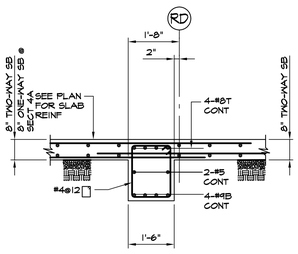
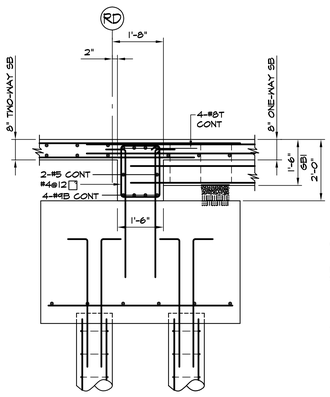
SCALE: ½" = 1'-0"



SECTION 4, 4A
SCALE: ½" = 1'-0"



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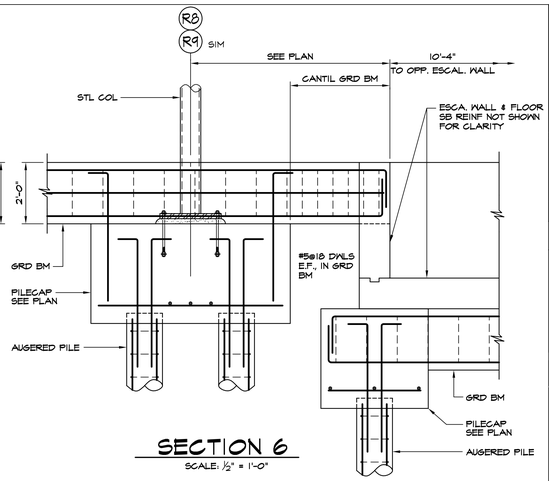
SCALE: ½" = 1'-0"



SECTION 6
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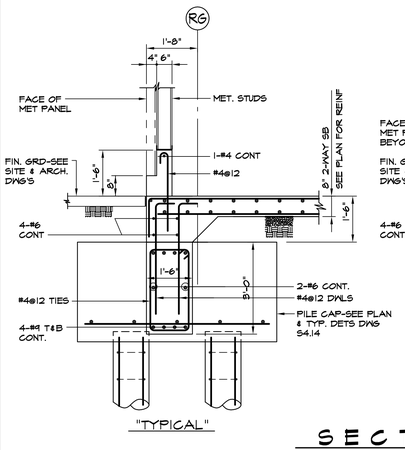
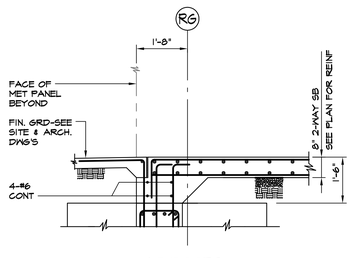


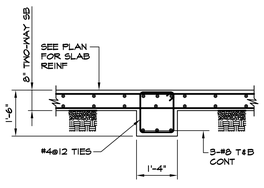
"TYPICAL"



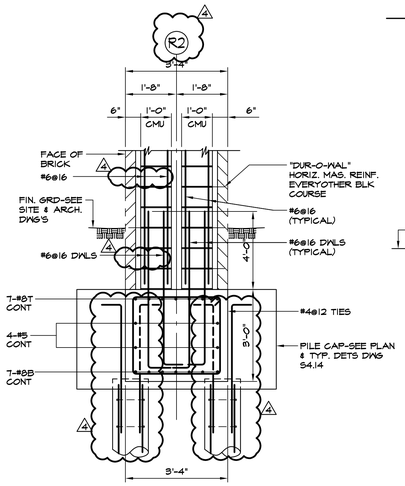
"AT DOORS"

NOTE
SEE "TYPICAL" PORTION OF SECTION 7/S3.25 FOR BALANCE AND PARTS NOT CALLED

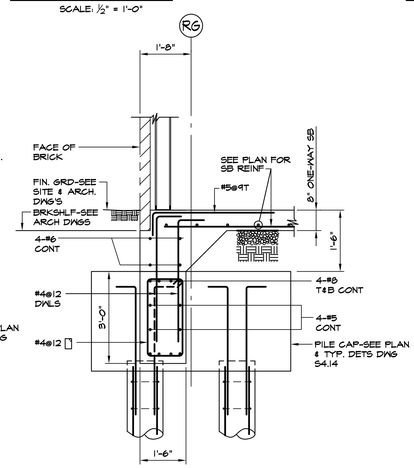
SECTION 7
SCALE: ½" = 1'-0"



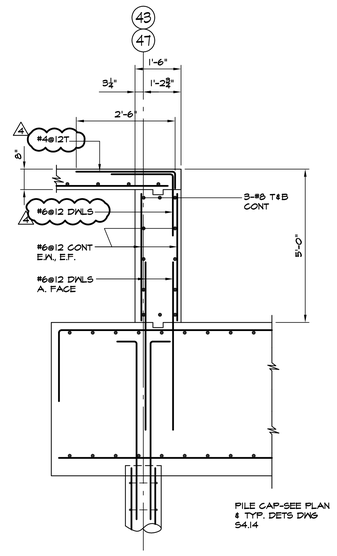
SECTION 8
SCALE: ½" = 1'-0"



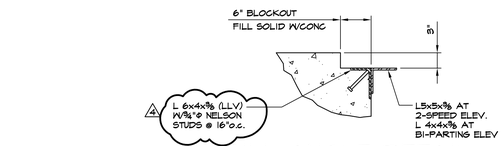
SECTION 9
SCALE: ½" = 1'-0"



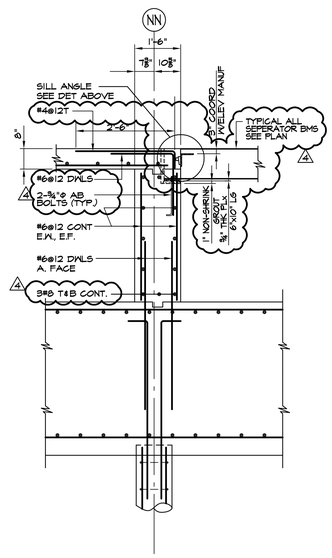
SECTION 10
SCALE: ½" = 1'-0"



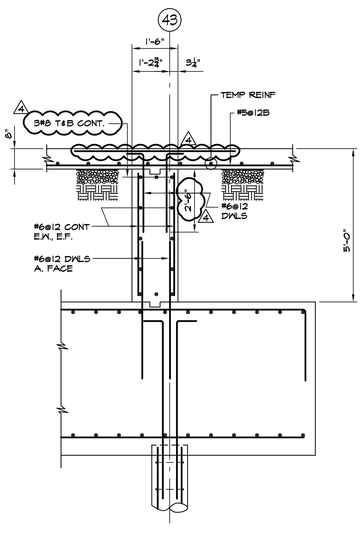
SECTION 11
SCALE: ½" = 1'-0"



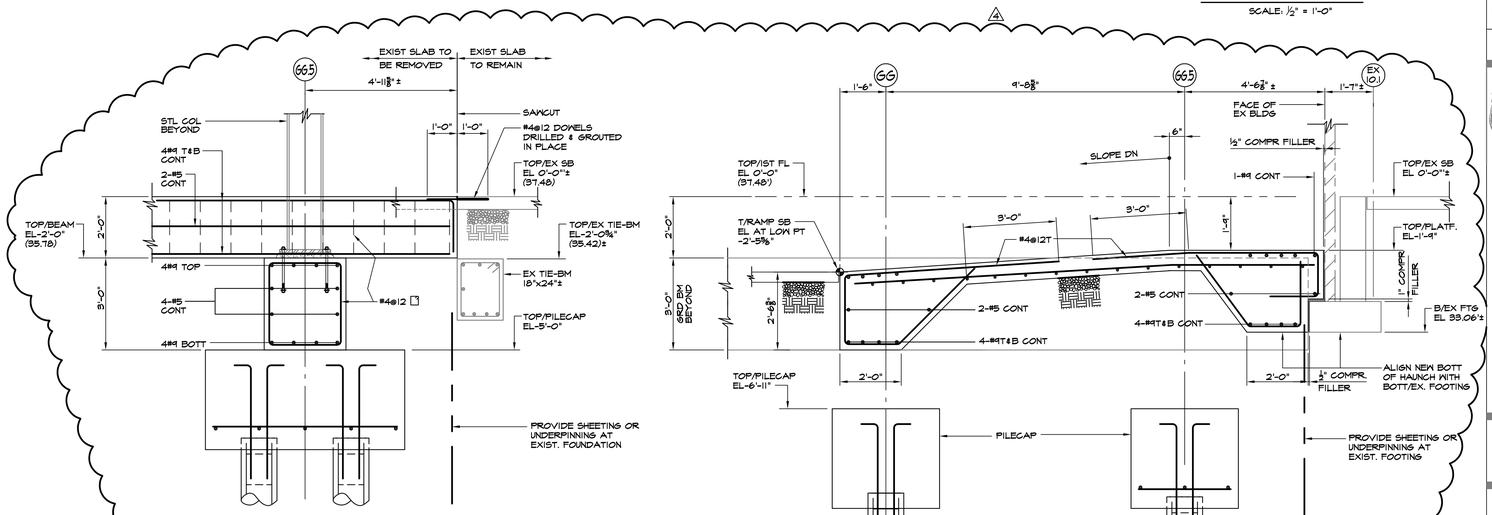
SILL ANGLE DETAIL
SCALE: 1" = 1'-0"



SECTION 12
SCALE: ½" = 1'-0"



SECTION 13
SCALE: ½" = 1'-0"



SECTION 14
SCALE: ½" = 1'-0"

SECTION 15
SCALE: ½" = 1'-0"

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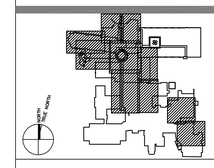

KEY PLAN

Jersey Shore University Medical Center
MEMBER OF THE MERIDIAN HEALTH FAMILY

ADDITIONS & RENOVATIONS

NEPTUNE, NEW JERSEY

SECTION 16

Date: 06-26-2006
Architect of record:
CHARLES H GRIFFIN
State: NJ
Registration no.: 21AI01557600

JOB NO.: H04043-00
PHASE: DD #3
DATE: 06/26/06

DRAWING NO: S3.25

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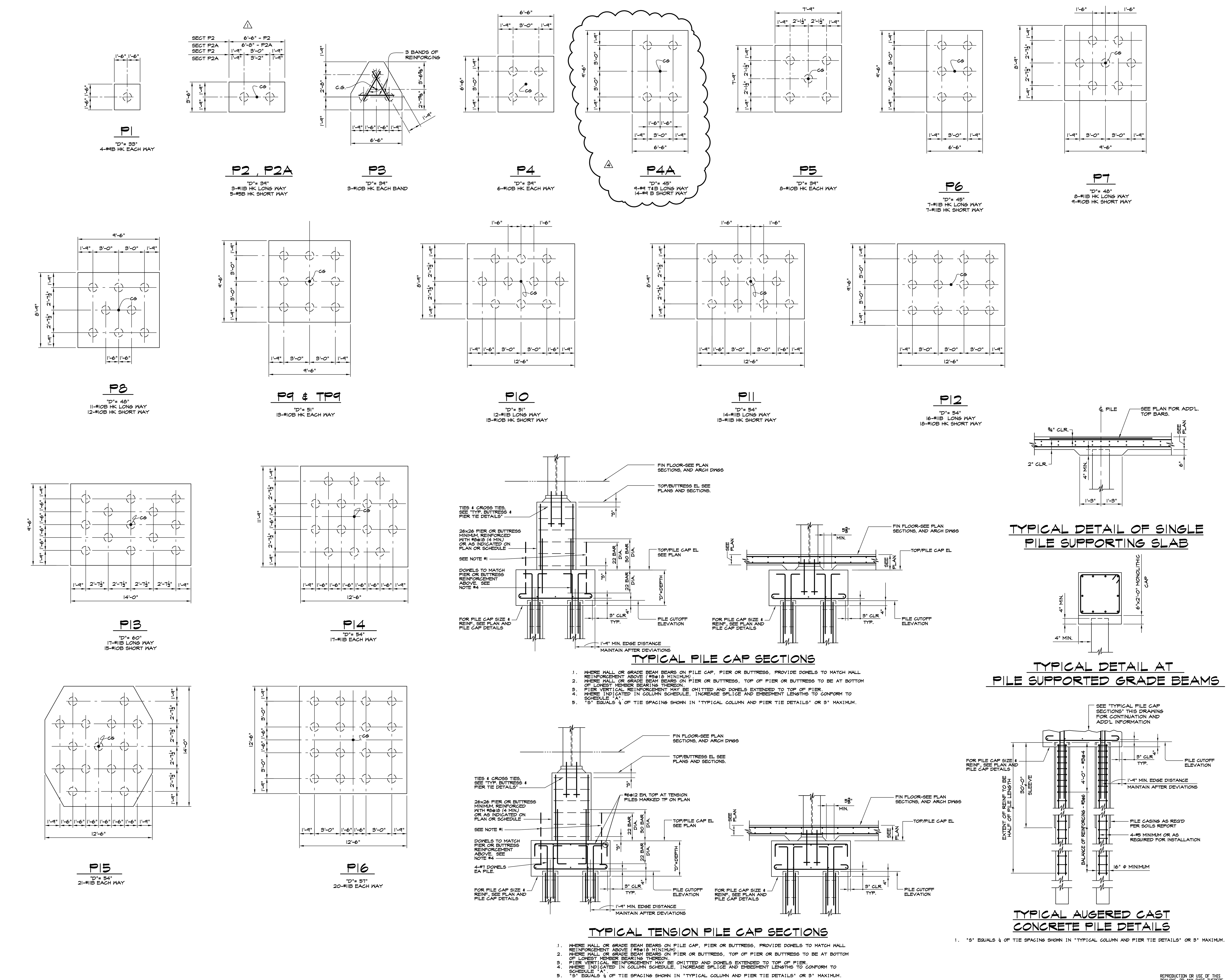

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NO.	DATE	DESCRIPTION
	09-19-05	ISSUE FOR DCA SD REVIEW
	12-21-05	DD PRICING
	01-13-06	REVISED DD
	03-15-06	PACKAGE No. 5 GARAGE-ISSUED FOR GMP
	03-22-06	PACKAGE No. 6 FOUNDATION-ISSUED FOR GMP
	05-01-06	BID PACKAGE No. 9
	05-09-06	REVISED FOUNDATION BID PACKAGE
	06-01-06	DCA ISSUE
	06-12-06	STRUCTURAL PRICING UPDATE
	06-26-06	ISSUED FOR GMP - B.P. #10
1	07-21-06	ADDENDUM #6
4	10-13-06	(VE) FOR NORTH-WEST TOWER

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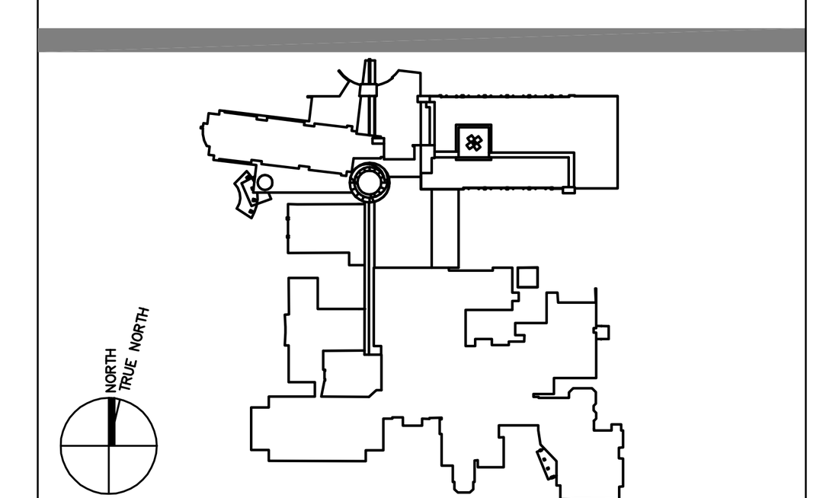

KEY PLAN

Jersey Shore University Medical Center
MEMBER OF THE MERIDIAN HEALTH FAMILY

ADDITIONS & RENOVATIONS

NEPTUNE, NEW JERSEY

TYPICAL DETAILS 5

Date: 06-26-2006
Architect of record: CHARLES H GRIFFIN
State: NJ
Registration no.: 21AI01557600

JOB NO.: H04043-00
PHASE: DD #3
DATE: 06/26/06
DRAWING NO: S4.14

04-077

FOUNDATIONS

1. ALL EXCAVATION, BACKFILL AND PLACEMENT OF FOUNDATIONS SHALL BE IN ACCORDANCE WITH THE REPORT BY DEWBERRY-GOODKIND, INC. BLOOMFIELD, NJ, AND SUPERVISED BY A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY. SEE "EARTHWORK" SECTION OF THE SPECIFICATION.
2. ASSUMED BOTTOM OF FOOTING AND PILE CAP ELEVATIONS AS SHOWN ON PLANS WERE BASED UPON THE REPORT PREPARED BY DEWBERRY-GOODKIND, INC. BLOOMFIELD, NJ, AND FROM INFORMATION ON EXISTING DRAWINGS. ACTUAL FIELD CONDITIONS, AS FOUND, SHALL GOVERN. CONTRACTOR SHALL FULFILL ALL REQUIREMENTS AND INTENT OF THESE DRAWINGS AND SPECIFICATIONS.
3. ALL FOOTINGS AND PILE CAPS ARE CENTERED UNDER COLUMNS UNLESS C.G. (CENTER OF GRAVITY) IS INDICATED ON PLAN.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR, AND SHALL SAFEGUARD AND PROTECT, ALL EXCAVATIONS AND EXISTING STRUCTURES DURING CONSTRUCTION OF FOUNDATIONS BY PROPER SAFEGUARDS, WHICH MAY INCLUDE BRACING.
5. THE CONTRACTOR IS TO DE-WATER SITE AS REQUIRED TO:
   A. PROPERLY INSTALL HIS FOUNDATIONS IN THE DRY.
   B. COOPERATE WITH THE MECHANICAL TRADES FOR INSTALLATION OF PIPES.
   C. PREVENT UPLIFT PRESSURE WHICH COULD CAUSE FLOTATION OR IMPAIR OR OTHERWISE INJURE OR CAUSE DAMAGE TO THE FOUNDATION STRUCTURE.
6. EXCEPT WHERE DIFFERENTIAL OF FILL ON EITHER SIDE OF FOUNDATION WALLS IS LESS THAN 4'-0", BACKFILL SHALL NOT BE PLACED AGAINST FOUNDATION WALLS UNLESS THE WALLS HAVE ATTAINED FULL DESIGN STRENGTH AND UNTIL 7 DAYS AFTER THE TOP AND BOTTOM BRACING SLAB IS PLACED, OR ALTERNATELY, UNTIL THE TOP AND BOTTOM OF THESE WALLS ARE BRACED. BRACING SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY, SIGNED, SEALED AND SUBMITTED TO ENGINEER OF RECORD FOR REVIEW.
7. ELEVATIONS PREFIXED "E" ARE ELEVATIONS OF EXISTING FOUNDATIONS AND SHOULD BE VERIFIED BY CONTRACTOR PRIOR TO BEGINNING ANY FOUNDATION WORK. ANY VARIATION AFFECTING NEW WORK SHALL BE BROUGHT TO THE ATTENTION OF STRUCTURAL ENGINEER.
8. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES (INCLUDING, BUT NOT LIMITED TO, ELECTRIC, TELEPHONE, COMMUNICATION, FUEL, SANITARY SEWER, GAS, STORM SEWER, AND WATER SERVICE) WITHIN THE LIMITS OF THE WORK.
9. WHERE CONSTRUCTION OPERATION CROSSES OR IS ADJACENT TO EXISTING UTILITY LINES, THE CONTRACTOR SHALL CAREFULLY HAND EXCAVATE SO AS TO LOCATE, MARK AND PROTECT THE UTILITY LINES AGAINST DISTURBANCE AND DAMAGE. THE CONTRACTOR SHALL PROVIDE ADEQUATE SUPPORT FOR ALL UTILITIES EXPOSED DURING CONSTRUCTION TO ENSURE AGAINST DISTURBANCE AND DAMAGE.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM WITH ALL REQUIREMENTS OF THE LATEST EDITIONS OF THE INTERNATIONAL BUILDING CODE, NEW JERSEY EDITION, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE", ACI 318, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 301, AND THE SPECIFICATIONS.
2. ALL CONCRETE SHALL BE CONTROLLED CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS AS LISTED BELOW. MINIMUM CEMENT CONTENT SHALL BE AS STATED IN THE SPECIFICATIONS.

3,500 PSI STONE:	ALL CONCRETE EXCEPT AS NOTED BELOW.
3,500 PSI LIGHTWEIGHT:	ALL STEEL DECK SLABS.
4,500 PSI STONE:	ALL EXTERIOR EXPOSED SLABS.
5,000 PSI STONE:	ALL PILE CAPS AND GRADE BEAMS, AND SUPPORTED FRAMED SLAB-ON-GROUND

3. NO CONCRETE SHALL BE PLACED UNTIL THE PRELIMINARY TRIAL MIXES HAVE BEEN DESIGNED AND APPROVED.
4. ALL TESTS, INSPECTIONS AND CONTROLS SHALL BE PERFORMED AS STATED IN THE SPECIFICATIONS.
5. ALL REINFORCING STEEL SHALL BE DEFORMED BARS OF NEW BILLET STEEL CONFORMING TO CURRENT REQUIREMENTS OF ASTM SPECIFICATION A615, GRADE 60, WITH A MINIMUM YIELD STRESS OF 60,000 PSI. WELDED WIRE FABRIC SHALL CONFORM TO ASTM SPECIFICATION A185, LATEST EDITION. REBAR AND WELDED WIRE FABRIC SPLICES SHALL BE AS PER ACI 318, LATEST EDITION, AND ACI SP-66, LATEST EDITION.
6. MINIMUM STEEL PROTECTION, UNLESS OTHERWISE SHOWN, SHALL BE:
   - 3" FOOTINGS AND OTHER PRINCIPAL STRUCTURAL CONCRETE PLACED AGAINST AND PERMANENTLY EXPOSED TO EARTH OR ROCK.
   - 2" EXTERIOR SLABS AND EXTERIOR FACE OF WALLS, BEAMS, PIERS, BUTTRESSES, COLUMNS AND OTHER SURFACES EXPOSED TO EARTH OR WEATHER, WITH #6 OR LARGER BARS.
   - 1-1/2" EXTERIOR SLABS AND EXTERIOR FACE OF WALLS, BEAMS, PIERS, BUTTRESSES, COLUMNS AND OTHER SURFACES EXPOSED TO EARTH OR WEATHER, WITH #5 OR SMALLER BARS AND INTERIOR FACE OF BEAMS, COLUMNS AND BUTTRESSES.
   - 3/4" INTERIOR SLABS, JOISTS AND INTERIOR FACE OF WALLS.
7. ALL STRUCTURAL MEMBERS SHALL BE POURED FOR THEIR FULL DEPTH IN ONE OPERATION. CONSTRUCTION JOINTS, SUCH AS DAY'S POUR JOINTS, SHALL BE LOCATED IN THE MIDDLE THIRD OF THE SPAN. THE REINFORCEMENT SHALL EXTEND THROUGH THE JOINT IN BOTH FACES. WHERE, IN EITHER FACE, NO REINFORCEMENT IS CALLED FOR, PROVIDE #4 DOWELS AT 12" ON CENTER (SEE DETAIL). JOINT SHALL BE ROUGHENED BY USE OF AN APPROVED SURFACE RETARDER, IN ACCORDANCE WITH MANUFACTURER'S DIRECTIONS, TO EXPOSE AGGREGATE. DEPTH OF ETCH SHALL BE 1/8" MINIMUM.
8. IN WALLS, VERTICAL CONSTRUCTION JOINTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE SPAN BETWEEN SUPPORTING COLUMNS, BUT SHALL NOT BE LOCATED WITHIN 3'-0" OF ANY WALL OPENING. HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY SHOWN ON DRAWINGS.
9. LOCATION OF ALL CONSTRUCTION JOINTS NOT CALLED FOR ON CONTRACT DRAWINGS SHALL BE APPROVED BY THE ARCHITECT/ENGINEER BEFORE PLACING CONCRETE.
10. THE CONCRETE CONTRACTOR SHALL COOPERATE WITH OTHER CONTRACTORS AND, WHERE REQUIRED, INSTALL ALL BUILT-IN WORK, SLEEVES, INSERTS, BRICK TIES, ETC., INCLUDING FRAMEWORK FOR CHASES, REGLETS AND OTHER PROVISIONS FOR BUILT-IN WORK TO COMPLETE THE JOB (SEE SPECIFICATIONS).
11. PROVIDE CONTINUOUS 24 GA. MIN. DOVETAIL ANCHOR SLOTS AT 2'-0" ON CENTER FOR ANCHORS IN ALL CONCRETE SURFACES FACED OR BUTTED WITH BRICK, BLOCK OR FACING TILE.
12. PROVIDE A MINIMUM OF #5 @ 18" ON CENTER x 2'-6" LONG FROM ALL FOOTINGS, PILE CAPS, PIERS, CAISSONS, ETC., TO EXTEND 1'-3" INTO WALLS AND GRADE BEAMS ON EACH FACE.
13. FLOOR SLABS-ON-GRADE SHALL BE REINFORCED WITH WWF 6 x 6 - W1.4 x W1.4 TOP UNLESS NOTED OTHERWISE ON PLANS. SLABS SHALL BE PLACED ON A VAPOR BARRIER OVER A WELL TAMPED 6" DEEP POROUS FILL PLACED OVER VIRGIN MATERIAL OR STRUCTURAL COMPACTED FILL. FOR JOINTING REQUIREMENTS, SEE SPECIFICATIONS.
14. ALL REINFORCING STEEL MARKED "CONTINUOUS" OR "CONT.", SHALL BE TENSION LAPPED AT CONTINUOUS ENDS AND HOOKED AT DISCONTINUOUS ENDS AS PER ACI 318, LATEST EDITION, AND ACI SP-66, LATEST EDITION.
15. CONCRETE FILL OR TOPPING 2" OR MORE IN THICKNESS ON SLABS TO BE REINFORCED WITH 1 1/2" x 17 GAUGE WOVEN GALVANIZED MESH OR FIBERMESH, USED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS, UNLESS OTHERWISE NOTED.
16. CONCRETE FILL OR TOPPING LESS THAN 2" THICK ON SLABS TO BE REINFORCED WITH FIBERMESH, USED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
17. BONDING COMPOUND SHALL BE APPLIED TO CONCRETE SLAB BEFORE PLACEMENT OF CONCRETE FILL OR TOPPING LESS THAN 3" IN THICKNESS.
18. ALL OPENINGS IN SLABS AND WALLS, UNLESS OTHERWISE SHOWN, SHALL HAVE A MINIMUM OF 2 - #5 BARS, TOP AND BOTTOM OR EACH FACE, ON ALL SIDES, EXTENDING 2'-6" BEYOND EDGES OF OPENINGS.
19. CORNERS AND INTERSECTIONS OF WALLS AND GRADE BEAMS SHALL BE REINFORCED WITH ANGLE BARS, THE SAME SIZE AS THE LARGEST CALLED FOR IN THE ADJACENT WALLS AND GRADE BEAMS AND AT THE SAME SPACING. SEE TYPICAL WALL REINFORCING DETAILS.
20. AT STEEL DECK SLABS, CONCRETE CONTRACTOR SHALL INCLUDE IN HIS BID ADDITIONAL QUANTITY OF CONCRETE THAT MAY BE REQUIRED TO PROVIDE A LEVEL SLAB AT THE PRESCRIBED ELEVATION AND COMPENSATE FOR STEEL DECK AND STEEL BEAM DEFLECTIONS.

STEEL LOOSE LINTELS

1. LOOSE LINTELS SHALL CONFORM TO ASTM SPECIFICATION A36 FOR STEEL.
2. UNLESS OTHERWISE SHOWN ON DRAWINGS, PROVIDE LOOSE LINTELS FOR INTERIOR AND EXTERIOR MASONRY OPENINGS AS FOLLOWS:
   A. FOR EVERY 4" OF MASONRY WALL, USE 1 ANGLE 4 x 3 1/2 x 5/16 FOR OPENINGS UNDER 4'-0" WIDE, AND 1 ANGLE 4 x 3 1/2 x 3/8 FOR OPENINGS BETWEEN 4'-0" AND 8'-0" WIDE.
   B. FOR 6" WALLS, USE 1 ANGLE 5 x 3 1/2 x 5/16 FOR OPENINGS UNDER 4'-0" WIDE, AND 1 ANGLE 5 x 5 x 3/8 FOR OPENINGS BETWEEN 4'-0" AND 8'-0" WIDE.
3. ALL LOOSE LINTELS TO HAVE 6" MINIMUM BEARING EACH END.
4. LOOSE LINTELS IN EXTERIOR WALLS TO BE HOT DIPPED GALVANIZED.
5. ALL LOOSE LINTELS TO BE PROVIDED BY STRUCTURAL STEEL CONTRACTOR.
6. FOR LOOSE LINTELS IN EXISTING STRUCTURE, PROVIDE PROCEDURES AND PRECAUTIONS AS OUTLINED UNDER "ALTERATION, UNDERPINNING AND SHEETING" NOTES.

ELECTRICAL WORK IN CONCRETE

1. ELECTRICAL CONTRACTOR SHALL CONFER WITH ARCHITECT, STRUCTURAL ENGINEER AND GENERAL CONTRACTOR BEFORE PLACING ANY CONDUITS IN CONCRETE CONSTRUCTION IN ORDER TO AGREE ON PERMISSIBLE ARRANGEMENTS OF CONDUITS.
2. ELECTRICAL CONTRACTOR SHALL PREVENT PLACING CONDUITS IN CONCRETE THAT WILL IMPAIR CONCRETE STRENGTHS.
3. ONLY CONDUITS HAVING OUTSIDE DIAMETERS NO LARGER THAN ONE-THIRD OF THE SLAB THICKNESS MAY BE INSTALLED. FOR SLABS ON STEEL DECK, SLAB THICKNESS SHALL BE CONSIDERED AS THICKNESS OF CONCRETE ABOVE UPPER DECK FLUTES.
4. CONDUITS ARE TO BE SPACED SO AS TO PROVIDE NO LESS THAN THREE (3) CONDUIT DIAMETERS, CENTER TO CENTER. WHEREVER POSSIBLE, LARGER SPACINGS ARE PREFERRED.
5. CONTINUOUS ROWS OF CONDUITS ARE NOT TO BE PLACED IMMEDIATELY ALONG BEARING ENDS OF SLABS.
6. ALUMINUM CONDUITS ARE NOT ALLOWED.
7. CONDUITS ARE NOT ALLOWED IN CONCRETE SLABS LESS THAN 4" THICK AND SHALL NOT PASS THROUGH THE CROSS-SECTIONAL AREA OF COLUMNS.
8. CONDUITS ARE NOT ALLOWED IN PAN SLAB AREA OF CONCRETE JOIST CONSTRUCTION.
9. CROSSOVER OF CONDUIT SHALL NOT BE ALLOWED IN STEEL DECK SLABS.

FLOOR DEPRESSIONS AND OPENINGS

1. FLOOR DEPRESSIONS AND OPENINGS TO BE PROVIDED WHERE EQUIPMENT OR FLOOR FINISHES REQUIRE THEM, WHETHER OR NOT INDICATED ON STRUCTURAL DRAWINGS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE HIS WORK WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS AND PROVIDE DEPRESSIONS AND OPENINGS AS REQUIRED.
2. GENERAL CONTRACTOR SHALL PROVIDE A COMPOSITE PENETRATION AND DEPRESSION DRAWING FOR EACH FLOOR SHOWING PRECISE LOCATION AND SIZE OF ALL SLEEVES, BOXED OPENINGS AND DEPRESSIONS FOR ALL TRADES. APPROVED COPIES OF THESE DRAWINGS SHALL BE USED BY DETAILER TO PROVIDE NECESSARY ADDITIONAL REINFORCEMENT AT ALL SUCH LOCATIONS IN ACCORDANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS. BOXED OPENINGS WILL NOT BE ALLOWED UNLESS SPECIFICALLY SHOWN ON STRUCTURAL DRAWINGS.
3. UNLESS OTHERWISE SHOWN ON DRAWINGS, ALL SLEEVES SHALL BE SEPARATED BY AT LEAST 4" OF CONCRETE TO PERMIT PASSAGE OF REINFORCEMENT. UNLESS SPECIFICALLY SHOWN ON STRUCTURAL PLANS OR APPROVED WORKING DRAWINGS, NO SLEEVE SHALL BE PLACED CLOSER THAN 4" TO ANY COLUMN FACE AND NOT MORE THAN ONE SUCH SLEEVE WITH 5" MAXIMUM DIAMETER SHALL BE SO PLACED IN FRONT OF ANY COLUMN.

STRUCTURAL STEEL

1. STRUCTURAL STEEL WORK AND ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, NEW JERSEY EDITION, AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN", AND AISC "CODE OF STANDARD PRACTICE", INCLUDING THE "COMMENTARY" AND SUPPLEMENTS.
2. THE STEEL FRAME OF THIS BUILDING IS DEPENDENT ON SELECTED MOMENT FRAMES AND/OR BRACED FRAMES, STEEL ROOF DECKING AND FLOOR SLAB DIAPHRAGMS FOR LATERAL STABILITY AND MUST BE BRACED UNTIL ALL STRUCTURAL STEEL CONNECTIONS ARE MADE PERMANENT, BRACING IS IN PLACE, ALL STEEL JOISTS AND METAL DECKING ARE ERECTED AND PERMANENTLY FASTENED AND CONCRETE SLABS ARE CAST. COLUMN ANCHOR BOLTS ARE NOT DESIGNED TO SUPPORT COLUMNS DURING ERECTION WITHOUT TEMPORARY SHORING AND BRACING. DETERMINE, FURNISH AND INSTALL TEMPORARY SHORING AND BRACING MEMBERS AND GUY LINES TO ACHIEVE PROPER ALIGNMENT OF STRUCTURES AS ERECTION PROCEEDS, WITH CONNECTIONS OF SUFFICIENT STRENGTH TO BEAR IMPOSED LOADS.
3. STRUCTURAL STEEL SHALL BE NEW, CLEAN AND STRAIGHT.
4. STRUCTURAL STEEL "W" SHAPES SHALL CONFORM TO ASTM SPECIFICATION A992, GRADE 50. STRUCTURAL PLATES AND BARS SHALL CONFORM TO ASTM SPECIFICATION A572, GRADE 50. ALL OTHER STRUCTURAL STEEL SHAPES SHALL CONFORM TO ASTM SPECIFICATION A36.
5. STEEL TUBING SHALL CONFORM TO CURRENT REQUIREMENTS OF ASTM SPECIFICATION A500, GRADE B.
6. STEEL PIPE SHALL CONFORM TO CURRENT REQUIREMENTS OF ASTM SPECIFICATION A53, TYPE "E" OR "S", GRADE B.
7. COLD BENT LIGHTWEIGHT STEEL FRAMING SHALL BE MANUFACTURED BY MARINO\WARE, SOUTH PLAINFIELD, NJ OR EQUAL.
8. "SLEEVE ANCHORS" NOTED ON DRAWINGS SHALL BE AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC. OR APPROVED EQUAL.
9. "EXPANSION BOLTS" NOTED ON DRAWINGS SHALL BE HILTI KWIK-BOLTS AS MANUFACTURED BY HILTI FASTENING SYSTEMS, INC. OR APPROVED EQUAL.
10. SUBSTITUTIONS FOR HILTI KWIK-BOLTS OR SLEEVE ANCHORS WILL NOT BE ALLOWED UNLESS SPECIFICALLY APPROVED BY ENGINEER.
11. ANCHOR RODS SHALL CONFORM TO CURRENT REQUIREMENTS OF ASTM SPECIFICATION A36, UNLESS OTHERWISE NOTED.
12. ALL CONNECTIONS TO BE DESIGNED FOR SHEAR VALUES INDICATED ON STRUCTURAL DRAWINGS. IF NO REACTION IS SHOWN, THEN SHEAR CONNECTIONS SHALL BE DESIGNED FOR 60% OF THE MAXIMUM ALLOWABLE UNIFORM LOAD AT NON-COMPOSITE CONSTRUCTION AND 85% OF THE MAXIMUM ALLOWABLE UNIFORM LOAD AT COMPOSITE CONSTRUCTION.
13. ALL CONNECTIONS SHALL BE FRAMED OR SEATED UNLESS OTHERWISE APPROVED AND SHALL BE WELDED OR HIGH STRENGTH BOLTED. AT SKEWED BEAMS, CONNECTIONS SHALL BE DOUBLE BENT PLATES UNLESS OTHERWISE APPROVED. SEE "MINIMUM BOLT REQUIREMENTS FOR SHEAR CONNECTIONS" TABLE. CONNECTIONS SHALL CONFORM TO "OSHA REQUIREMENTS FOR STEEL DETAILING & ERECTION."
14. ALL BEAM CONNECTIONS TO TUBE OR PIPE COLUMNS TO BE THROUGH PLATE CONNECTIONS, UNLESS OTHERWISE NOTED.
15. ALL HIGH STRENGTH BOLTS SHALL BE 3/4" DIAMETER INSTALLED IN OPEN HOLES 13/16" DIAMETER UNLESS OTHERWISE NOTED.
16. HIGH STRENGTH BOLTS SHALL BE SLIP CRITICAL TYPE DESIGNATED A325-SC AND CONFORM TO ASTM SPECIFICATION A325, LATEST EDITION, UNLESS OTHERWISE NOTED. WELDING ELECTRODES SHALL CONFORM TO AWS D1.1-E70XX.
17. HARDENED WASHERS SHALL BE PROVIDED UNDER TURNING ELEMENT AT ALL HIGH STRENGTH BOLTED CONNECTIONS.
18. FIELD INSPECTION AND TESTING OF HIGH STRENGTH BOLTS WILL BE REQUIRED.
19. WELDING SHALL CONFORM TO CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION OF THE AMERICAN WELDING SOCIETY. ALL WELDING TO BE PERFORMED BY LICENSED WELDERS AND WELDS TO BE APPROVED BY A WELDING INSPECTION AGENCY.
20. BEAMS SUPPORTING COLUMNS, STRUTS OR BEAMS ABOVE AND BEAMS BEARING ON COLUMNS OR BEAMS, SHALL BE PROVIDED WITH STIFFENER ANGLES, TEES OR PLATES ON WEBS, GROUND TO BEAR.
21. CONNECTIONS FOR HUNG LINTELS AND OTHER MEMBERS REQUIRING ADJUSTMENT SHALL BE PROVIDED WITH SHIMS OR SLOTTED HOLES, AS REQUIRED FOR PROPER FINAL INSTALLATION.
22. ALL HUNG LINTEL ANGLES AND RELIEVING ANGLES IN EXTERIOR WALLS TO BE HOT DIPPED GALVANIZED.
23. PROVISIONS SHALL BE MADE FOR PENETRATIONS AND CONNECTIONS OF OTHER TRADES, INCLUDING CUTTING, PUNCHING AND REINFORCEMENT OF STRUCTURAL MEMBERS, WHERE REQUIRED BY DRAWINGS OR FOR WHICH INFORMATION IS FURNISHED PRIOR TO FABRICATION.
24. PROVIDE STEEL FRAMING AS REQUIRED, WHETHER OR NOT SHOWN ON STRUCTURAL DRAWINGS, WHEN MORE THAN 1 RIB IS CUT IN STEEL DECK AND FOR ALL OPENINGS EXCEEDING 8". THIS APPLIES TO ROOF DRAINS, SUMP PANS, LARGE PIPES, SLEEVES, ETC. SEE TYPICAL OPENING DETAILS.
25. LEVELING PLATES WILL NOT BE PERMITTED UNDER BASE PLATES.
26. STEEL CONTRACTOR SHALL PROVIDE ERECTION PLANS TO MECHANICAL CONTRACTOR FOR VERIFICATION AND COORDINATION BY MECHANICAL CONTRACTOR OF LOCATION OF ALL FRAMING FOR SUPPORT OF MECHANICAL EQUIPMENT AND FOR SIZE AND LOCATION OF MECHANICAL OPENINGS, PRIOR TO SUBMISSION OF SHOP DRAWINGS AND PRIOR TO FABRICATION OR ERECTION OF STRUCTURAL STEEL. SUBMISSION OF ERECTION DRAWINGS TO STRUCTURAL ENGINEER WILL INDICATE THAT COORDINATION IS COMPLETE.
27. ALL COLUMN SPLICES TO BE DETAILED AS PER "STRUCTURAL STEEL DETAILING MANUAL/AISC", LATEST EDITION, UNLESS OTHERWISE INDICATED ON DRAWINGS.
28. PROVIDE MOMENT CONNECTIONS FOR BEAM TO COLUMN CONNECTIONS WHERE INDICATED ON PLAN. SEE "TYPICAL BEAM TO COLUMN MOMENT CONNECTION DETAILS".
29. PROVIDE BEARING PLATES AND ANCHOR BOLTS AT ALL BEAMS BEARING ON CONCRETE OR MASONRY.
30. PROVIDE GALVANIZED MASONRY ANCHORING SYSTEM VERTICALLY ON ALL STEEL COLUMN FLANGES AND WEBS, TUBE COLUMN FACES AND PREFABRICATED FIREPROOFED COLUMN SHELL FACES, AND HORIZONTALLY ON ALL BEAM WEBS, ABUTTED WITH OR ENCASED IN MASONRY. SEE "TYPICAL MASONRY ANCHORING SYSTEM DETAILS."

STEEL DECK

1. DECK UNITS SHALL BE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISI "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS" AND THE S.D.I. "DESIGN MANUAL FOR FLOOR DECKS AND ROOF DECKS", WITH MODIFICATIONS AS INDICATED ON DRAWINGS.
2. DECK SHALL BE MANUFACTURED FROM STEEL CONFORMING TO ASTM SPECIFICATION A653 WITH A MINIMUM YIELD STRENGTH OF 33,000 PSI. THE STEEL SHALL HAVE RECEIVED, BEFORE BEING FORMED, A METAL PROTECTIVE COATING OF ZINC CONFORMING TO ASTM SPECIFICATION A-653, G60 AND TO FEDERAL SPECIFICATION QQ-S-775d, TYPE 1, CLASS E. THE MAXIMUM WORKING STRESS SHALL NOT EXCEED 20,000 PSI.
3. ALL STEEL DECK TO BE AS MANUFACTURED BY UNITED STEEL DECK, INC. OR EQUAL.
4. DECK SHALL BE DETAILED FOR A MINIMUM OF 3 SPANS UNLESS OTHERWISE APPROVED BY ENGINEER OF RECORD.
5. FASTEN DECK TO SUPPORTING STEEL THROUGH BOTTOM OF RIBS BY WELDING FROM TOP OF DECK THROUGH WELD WASHERS SPACED A MAXIMUM OF 12" ON CENTER ALONG EACH SUPPORTING MEMBER. FASTEN SIDE LAPS MECHANICALLY BY BUTTON PUNCHING OR #12 SELF-DRILLING SCREWS SPACED A MAXIMUM OF 36" ON CENTER. WELD WASHERS MAY BE OMITTED FOR 20 GAUGE OR HEAVIER DECK IF INSTALLER CAN DEMONSTRATE TO THE SATISFACTION OF ENGINEER THAT ADEQUATE WORK CAN BE DONE WITHOUT WELD WASHERS.
6. FOR ADDITIONAL WELDING REQUIREMENTS OF ROOF DECK AT PERIPHERY OF BUILDING, SEE SPECIFICATIONS.
7. PROVIDE CONTINUOUS SHIMS OR CONTINUOUS 12 GA. BENT PLATE AS REQUIRED TO SUPPORT STEEL DECK ON STEEL BEAMS WHERE TOP OF BEAM IS MORE THAN 1/16" BELOW PLANE OF DECK SOFFIT. SEE "TYPICAL SLOPING DECK SUPPORT".
8. OPENINGS IN DECK FROM 4" TO 8" SHALL BE REINFORCED WITH 20" X 20" MINIMUM, 14 GAUGE PLATES, TO BE WELDED 6" ON CENTER AROUND PERIPHERY.
9. FOR OPENINGS IN DECK EXCEEDING 8" SEE STRUCTURAL STEEL NOTES.
10. PROVIDE ADDITIONAL ANGLE SUPPORTS UNDER DECK AT COLUMNS AS REQUIRED TO SUPPORT DECK. SEE DETAIL.
11. PROVIDE POUR STOPS AT ALL DECK EDGES AT CONCRETE SLABS. GAGE (THICKNESS) OF POUR STOP SHALL BE AS RECOMMENDED BY MANUFACTURER, BUT NOT LESS THAN 16 GAGE.
12. PROVIDE TEMPORARY SHORES AS REQUIRED WHEN OVERHANG OF DECK OR POUR STOP EXCEEDS MANUFACTURER'S RECOMMENDED DISTANCE.
13. PROVIDE 20 GA. MIN. CELL CLOSURES AT FLUTED DECK ENDS AT CONCRETE SLABS.
14. PROVIDE 20 GA. MIN. FINISH STRIPS AND 12 GA. MIN. BENT PLATE EDGE PIECES AS REQUIRED AT ROOF DECK AND OTHER EDGES WHERE CONCRETE SLABS ARE NOT REQUIRED, UNLESS OTHERWISE NOTED.
15. PROVIDE 20 GA. MIN. REINFORCING CHANNELS, RIDGE PLATES, VALLEY PLATES AND BUTT STRIPS AS REQUIRED AT ROOF DECK.
16. SUSPENDED CEILINGS, LIGHT FIXTURES, DUCTS OR OTHER UTILITIES SHALL NOT BE SUPPORTED BY STEEL ROOF DECK.

SHEAR CONNECTOR STUDS

1. SHEAR CONNECTOR STUDS SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF AISC AND AWS SPECIFICATIONS, LATEST EDITION.
2. ALL SHEAR CONNECTOR STUDS TO BE 3/4" DIAMETER AND TO BE WELDED TO TOP FLANGE OF BEAMS AND GIRDERS DIRECTLY OR THROUGH DECK AS REQUIRED.
3. (22) INDICATES TOTAL NUMBER OF SHEAR CONNECTOR STUDS TO BE EQUALLY SPACED ALONG BEAM BETWEEN SUPPORTS.
4. (15/4/15) INDICATES NUMBER OF SHEAR CONNECTOR STUDS TO BE EQUALLY SPACED BETWEEN GIRDER SUPPORTS AND BEAMS FRAMING INTO GIRDER. UNLESS OTHERWISE NOTED, MIDDLE NUMBER (/4/) SHALL BE REPEATED FOR EACH INTERIOR BAY.
5. WHERE POSSIBLE, SHEAR CONNECTOR STUDS SHALL BE PLACED IN A SINGLE ROW WITH 1 PER RIB, OR A MINIMUM CENTER TO CENTER SPACING OF 4-1/2", ALONG LONGITUDINAL AXIS OF BEAM.
6. IF REQUIRED, A SECOND ROW OF SHEAR CONNECTOR STUDS SHALL BE PLACED WITH A MINIMUM CENTER TO CENTER SPACING OF 3" TRANSVERSE TO THE LONGITUDINAL AXIS OF THE BEAM AND MEETING CRITERIA OF NOTE 5 ABOVE. STUD PLACEMENT FOR SECOND ROW SHALL START AT SUPPORTS AND CONTINUE UNTIL REQUIRED NUMBER OF STUDS HAVE BEEN PLACED.
7. IF REQUIRED, ADDITIONAL ROWS OF SHEAR CONNECTOR STUDS SHALL BE PROVIDED, MEETING CRITERIA OF NOTE 6 ABOVE.
8. SHEAR CONNECTOR STUDS INDICATED DO NOT INCLUDE BEAM CANTILEVERS. AT CANTILEVERS PROVIDE STUDS AT 3'-0" ON CENTER MAXIMUM.
9. (N) INDICATES NO SHEAR CONNECTOR STUDS REQUIRED.
10. (M) INDICATES SHEAR CONNECTOR STUDS AT 3'-0" ON CENTER MAXIMUM.
11. UNLESS OTHERWISE NOTED, PROVIDE SHEAR CONNECTOR STUDS AT 3'-0" ON CENTER MAXIMUM ON ALL BEAMS OR PORTIONS OF BEAMS SUPPORTING SLABS.

COLD FORMED STEEL FRAMING

1. COLD FORMED STEEL FRAMING SHALL BE PROVIDED AND INSTALLED BY THE GENERAL CONTRACTOR.
2. COLD FORMED STEEL FRAMING AS REQUIRED FOR INTERIOR AND EXTERIOR CONSTRUCTION SHALL BE DESIGNED IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE INTERNATIONAL BUILDING CODE, NEW JERSEY EDITION.
3. DESIGNATIONS SHOWN ON DRAWINGS ARE FOR "MARINOWARE, STUD-RITE LIGHTWEIGHT STEEL FRAMING". EQUIVALENT PRODUCTS OF OTHER MANUFACTURERS MAY BE PROPOSED FOR CONSIDERATION.
4. ALL STRUCTURAL PROPERTIES SHALL BE COMPUTED IN ACCORDANCE WITH THE A.I.S.I. "SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS".
5. STEEL FRAMING BRACING MASONRY WALLS SHALL BE DESIGNED SO THAT DEFLECTIONS CAUSED BY WIND AND SEISMIC LOADS ARE LIMITED TO ONE-SIX HUNDREDTH OF THE SPAN USING 16 GAGE MINIMUM MATERIAL.
6. ALL LIGHT GAGE STEEL STUDS AND JOISTS, INCLUDING ACCESSORIES, SHALL BE GALVANIZED WITH A MINIMUM G-60 COATING.
7. STUDS, RUNNERS, BRACING AND BRIDGING SHALL BE MANUFACTURED PER ASTM C-955.
8. ALL GALVANIZED STUDS, JOISTS AND ACCESSORIES, 16 GAGE OR HEAVIER, SHALL BE FORMED FROM STEEL THAT CONFORMS TO THE REQUIREMENTS OF ASTM A-653 WITH A YIELD OF 50 KSI AND AS SET FORTH IN SECTION 1.2 OF THE A.I.S.I. "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION.
9. ALL GALVANIZED STUDS, JOISTS AND ACCESSORIES, 18 GAGE OR LIGHTER, SHALL BE FORMED FROM STEEL THAT CONFORMS TO THE REQUIREMENTS OF ASTM A-653, WITH A YIELD OF 33 KSI AND AS SET FORTH IN SECTION 1.2 OF THE A.I.S.I. "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION.
10. PROVIDE SLIDE CLIPS, DEFLECTION TRACKS, ETC. AT CONNECTION OF LIGHT GAGE STEEL STUDS TO STRUCTURAL ELEMENTS TO PERMIT INDEPENDENT VERTICAL DEFLECTION OF STRUCTURE.
11. PROVIDE SOLID BRIDGING AT THIRD POINTS FOR SPANS GREATER THAN 16 FEET AND AT MID SPAN FOR SPANS LESS THAN 16 FEET.
12. FOR STUD WALLS PROVIDE BRIDGING AS PER MANUFACTURER'S RECOMMENDATIONS, BUT NOT GREATER THAN 4'-0" ON CENTER.
13. PROVIDE ADDITIONAL JOIST UNDER PARTITIONS WHEN THEY RUN PARALLEL TO JOISTS.
14. SEAT JOISTS FULLY AND SQUARELY ON SUPPORTS, LOCATED DIRECTLY OVER STUDS.
15. BEFORE FABRICATION VERIFY ALL DIMENSIONS WITH ARCHITECTURAL DRAWINGS.
16. FOR NON-LOAD BEARING STUDS SEE ARCHITECTURAL DRAWINGS.
17. PROVIDE HOT DIPPED GALVANIZED DW-10X MASONRY VENEER ANCHORS WITH 3/16" BYNA-TIE & SEISMICCLIP INTERLOCK SYSTEM BY HOHMANN AND BARNARD, INC. OR EQUAL, AT 16" ON CENTER VERTICALLY AND HORIZONTALLY AT MASONRY WALLS. SECURE ANCHORS DIRECTLY TO STEEL STUDS.
18. SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NEW JERSEY AND CONTAIN AT LEAST THE FOLLOWING INFORMATION:
    A. PLACING DRAWINGS FOR FRAMING MEMBERS SHOWING SIZE, GAGE, DESIGNATIONS, NUMBER, TYPE, LOCATION AND SPACING.
    B. CALCULATIONS FOR ALL PANEL MEMBERS, CONNECTIONS, AND PRE-FABRICATED FRAMES.

4

PAINTING OF EXPOSED STRUCTURAL STEEL

1. MATERIALS
   A. SHOP COAT PRIMER PAINT: SERIES 90-97 TNEME-ZINC AS MANUFACTURED BY TNEMEC COMPANY, KANSAS CITY, MO; ORGAN 16 ZINC RICH PRIMER S 3297 AS MANUFACTURED BY PRATT & LAMBERT, BUFFALO, NY, OR ZINC PLATE 265-74 PRIME AS MANUFACTURED BY CON-LUX COATINGS INC., EDISON, NJ.
   B. FIELD COAT PAINT: SERIES 73, ENDURA SHIELD III, AS MANUFACTURED BY TNEMEC COMPANY, KANSAS CITY, MO, ENDU-THANE HIGH BUILD URETHANE S 2800 AS MANUFACTURED BY PRATT & LAMBERT, BUFFALO, NY, OR ACROLON MULTI-MIL SERIES AS MANUFACTURED BY CON-LUX COATINGS INC., EDISON, NJ.
2. GENERAL
   A. DO NOT PAINT SURFACES WHICH ARE TO BE WELDED OR HIGH STRENGTH BOLTED WITH SLIP-CRITICAL CONNECTIONS.
   B. APPLY 2 COATS OF PAINT TO SURFACES WHICH ARE INACCESSIBLE AFTER ASSEMBLY OR ERECTION. CHANGE COLOR OF SECOND COAT TO DISTINGUISH IT FROM FIRST.
   C. SURFACE PREPARATION: AFTER INSPECTION AND BEFORE SHIPPING, CLEAN STEELWORK TO BE PAINTED. REMOVE LOOSE RUST, LOOSE MILL SCALE, AND SPATTER, SLAG OR FLUX DEPOSITS. CLEAN STEEL IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL (SSPC) AS FOLLOWS:
      1. NEW STEEL SHALL BE CLEANED IN ACCORDANCE WITH SSPC SP6 "COMMERCIAL BLAST CLEANING".
   D. PAINTING: IMMEDIATELY AFTER SURFACE PREPARATION, APPLY STRUCTURAL STEEL PRIMER PAINT IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND AT A RATE TO PROVIDE A DRY FILM THICKNESS OF 2.0 TO 3.0 MILS. USE PAINTING METHODS WHICH RESULT IN FULL COVERAGE OF JOINTS, CORNERS, EDGES AND EXPOSED SURFACES. STEEL SHALL RECEIVE A FIELD COAT APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND AT A RATE TO PROVIDE A DRY FILM THICKNESS OF 4.0 TO 6.0 MILS.
   E. APPLY EXTRA COAT TO CORNERS, WELDS, EDGES, AND FASTENERS.

MASONRY

1. ALL MASONRY WORK SHALL CONFORM WITH ALL REQUIREMENTS OF THE LATEST EDITIONS OF THE INTERNATIONAL BUILDING CODE, NEW JERSEY EDITION, "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES", ACI 530/ASCE 5/TMS 402 AND THE SPECIFICATIONS.
2. MASONRY SHALL BE LIGHTWEIGHT HOLLOW LOAD BEARING CONCRETE MASONRY UNITS CONFORMING TO ASTM SPECIFICATION C90, TYPE I.
3. CONCRETE FOR MASONRY UNITS SHALL HAVE A MINIMUM STRENGTH OF 1,900 PSI (f'm = 1,500 psi).
4. MORTAR FOR MASONRY UNITS SHALL BE TYPE "S" CONFORMING TO ASTM SPECIFICATION C270.
5. PROVIDE CONTINUOUS JOINT REINFORCEMENT (STANDARD DUR-O-WAL, OR EQUAL) IN ALTERNATE BED COURSES FOR ALL MASONRY UNLESS OTHERWISE NOTED. SEE "MINIMUM REINFORCEMENT IN MASONRY WALLS".
6. MASONRY WALLS UNDER STRUCTURAL BEARINGS SHALL BE GROUT FILLED BLOCKS FOR A WIDTH OF 1'-4" EACH SIDE OF BEARING AND A DEPTH OF 2 COURSES BELOW BEARING ELEVATION UNLESS OTHERWISE NOTED ON DRAWINGS.
7. A 2'-0" WIDTH AT THE ENDS OF ALL MASONRY WALLS SHALL BE GROUT FILLED FOR THE FULL HEIGHT OF THE WALL.
8. MASONRY WALLS SUPPORTING PRECAST DECK SHALL BE GROUT FILLED BLOCKS FOR A DEPTH OF 2 COURSES BELOW BEARING ELEVATION UNLESS OTHERWISE NOTED ON DRAWINGS.
9. VERTICAL BARS DENOTED EACH FACE (EF) IN MASONRY WALLS SHALL BE PLACED 1/2" CLEAR FROM FACE OF CELL WALL.
10. MASONRY WALLS BELOW SLAB ON GROUND LEVEL SHALL BE GROUT FILLED.
11. VERTICAL BARS IN WALLS SHALL BE SUPPORTED AND SECURED AGAINST DISPLACEMENT AT 8'-0" ON CENTER MAXIMUM.
12. FILL ALL REINFORCED CMU VOIDS SOLID WITH GROUT.
13. MASONRY BEARING WALLS ARE SHOWN ON PLANS. SEE ARCHITECTURAL DRAWINGS FOR EXTENT AND LOCATION OF OTHER WALLS.
14. FOR GALVANIZED MASONRY ANCHORS TO STRUCTURE SEE "TYPICAL MASONRY ANCHORING YSTEM DETAILS".

STRUCTURAL SPECIAL INSPECTION

1. SPECIAL INSPECTIONS OF MATERIALS AND WORK WILL BE PERFORMED AS FOLLOWS AND IN CONFORMANCE WITH ALL REQUIREMENTS OF THE LATEST EDITION OF THE INTERNATIONAL BUILDING CODE, NEW JERSEY EDITION.
2. SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE CODE OFFICIAL, AND TO THE ENGINEER OR ARCHITECT OF RECORD. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THE DISCREPANCIES ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CODE OFFICIAL AND TO THE ARCHITECT OR ENGINEER OF RECORD. A FINAL REPORT OF INSPECTIONS, DOCUMENTING COMPLETION OF REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS, SHALL BE SUBMITTED.
3. OWNER PROVIDED INSPECTION
   A. STRUCTURAL STEEL CONSTRUCTION
      (1) FABRICATION
         a. MATERIAL IDENTIFICATION
         b. INSTALLATION OF HIGH STRENGTH BOLTS
         c. WELDING
      (2) ERECTION
         a. MATERIAL IDENTIFICATION
         b. INSTALLATION OF HIGH STRENGTH BOLTS
         c. WELDING
         d. CONFORMANCE WITH CONTRACT DOCUMENTS
   B. CONCRETE CONSTRUCTION
      (1) MATERIAL IDENTIFICATION.
      (2) PLANT BATCHING OPERATION VERIFYING APPROVED MIX PROPORTIONS AND TECHNIQUES
      (3) PREPARATION AND TESTING OF CONCRETE CYLINDERS
      (4) FIELD TESTING OF CONCRETE FOR AIR CONTENT, SLUMP, TEMPERATURE, PLASTIC UNIT WEIGHT, ETC
      (5) INSTALLATION OF REINFORCING BARS
      (6) PLACEMENT OF CONCRETE FOR PROPER APPLICATION TECHNIQUES
      (7) MAINTENANCE OF CURING TEMPERATURES AND TECHNIQUES
      (8) FORMWORK FOR FINAL STRUCTURE SHAPES
      (9) INSTALLATION OF PRESTRESSING STEEL AND APPLICATION OF PRESTRESSING FORCES
   C. MASONRY CONSTRUCTION
      (1) MATERIAL IDENTIFICATION
      (2) MASONRY STRENGTH
      (3) CONSTRUCTION OPERATIONS
         a. PROPORTIONING, MIXING AND CONSISTENCY OF MORTAR AND GROUT
         b. APPLICATION OF MORTAR, GROUT AND MASONRY UNITS
         c. CONDITION, SIZE, LOCATION AND SPACING OF REINFORCING
         d. PROTECTION OF MASONRY DURING COLD WEATHER AND HOT WEATHER
         e. ANCHORAGE.
   D. SPRAY-ON FIREPROOFING
      (1) MATERIAL IDENTIFICATION
      (2) STRUCTURAL MEMBER SURFACE CONDITIONS
      (3) APPLICATION
      (4) THICKNESS
      (5) DENSITY
      (6) BOND STRENGTH
   E. EARTHWORK
      (1) REMOVAL OF ON SITE FILL MATERIALS
      (2) PROOFROLLING OF SUBGRADE
      (3) PLACEMENT OF CONTROLLED COMPACTED FILL
   F. PILE FOUNDATIONS
      (1) INSTALLATION
      (2) MATERIAL IDENTIFICATION
   G. CONCRETE CONSTRUCTION
      (1) MATERIAL IDENTIFICATION.
      (2) PLANT BATCHING OPERATION VERIFYING APPROVED MIX PROPORTIONS AND TECHNIQUES
      (3) PREPARATION AND TESTING OF CONCRETE CYLINDERS
      (4) FIELD TESTING OF CONCRETE FOR AIR CONTENT, SLUMP, TEMPERATURE, PLASTIC UNIT WEIGHT, ETC
      (5) INSTALLATION OF REINFORCING BARS
      (6) PLACEMENT OF CONCRETE FOR PROPER APPLICATION TECHNIQUES
      (7) MAINTENANCE OF CURING TEMPERATURES AND TECHNIQUES
      (8) FORMWORK FOR FINAL STRUCTURE SHAPES
      (9) INSTALLATION OF PRESTRESSING STEEL AND APPLICATION OF PRESTRESSING FORCES
      (10) MANUFACTURE OF PRECAST CONCRETE
      (11) ERECTION OF PRECAST CONCRETE
4. CONTRACTOR PROVIDED INSPECTION
   A. CONCRETE MIX DESIGNS
   B. FORMWORK DESIGN CONFORMANCE AND REMOVAL OF FORMS AND SHORES.

DEMOLITION

1. DURING ALL PHASES OF DEMOLITION AND CONSTRUCTION, GENERAL CONTRACTOR SHALL MAINTAIN STRUCTURAL INTEGRITY OF STRUCTURES TO BE DEMOLISHED AND ADJACENT FACILITIES TO REMAIN, WITH INTERIOR OR EXTERIOR SHORING, BRACING OR SUPPORT TO PREVENT MOVEMENT, SETTLEMENT OR COLLAPSE OF STRUCTURES.
2. AT CONCRETE STRUCTURES WHERE DEMOLITION OR NEW OPENINGS ARE REQUIRED, SAW-CUTTING SHALL BE PERFORMED AT THE DESIGNATED LINE OF DEMOLITION AND AT NO TIME EXCEED THE LIMITS OF THE OPENING. CORE DRILL AT CORNERS.
3. EXISTING STRUCTURES TO REMAIN SHALL BE SAFED-OFF AND PROTECTED FROM ELEMENTS AT ALL TIMES.

ALTERATION, AND SHEETING

1. CONTRACTORS ARE REQUIRED TO EXAMINE THE DRAWINGS CAREFULLY, VISIT THE SITE, AND FULLY INFORM THEMSELVES AS TO ALL EXISTING CONDITIONS AND LIMITATIONS, PRIOR TO SUBMITTING THEIR PROPOSAL. FAILURE TO VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND LIMITATIONS WILL IN NO WAY RELIEVE SUCCESSFUL BIDDER FROM FURNISHING ANY MATERIALS OR PERFORMING ANY WORK THAT MAY BE REQUIRED TO COMPLETE THE WORK, IN ACCORDANCE WITH THE DRAWINGS AND WITHOUT ADDITIONAL COST TO THE OWNER.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BY MEASUREMENTS AT THE JOB SITE AND SHALL TAKE ANY AND ALL OTHER MEASUREMENTS NECESSARY TO VERIFY THE DRAWINGS AND TO ALLOW PROPER PERFORMANCE OF HIS WORK. ANY DISCREPANCY BETWEEN THE DRAWINGS AND THE MEASURED DIMENSIONS OF THE EXISTING STRUCTURE SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT. NO WORK SHALL PROCEED UNTIL SUCH DISCREPANCY HAS BEEN RECTIFIED. SUCH DISCREPANCIES BETWEEN THE DRAWINGS AND THE MEASURED DIMENSIONS SHALL NOT BE THE REASON FOR ANY EXTRA COST OR DELAY IN THE EXECUTION OF THE WORK AND THE WORK SHALL BE PERFORMED PER INTENT OF THE CONTRACT DOCUMENTS AT NO EXTRA COST TO THE OWNER.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO WORK WITH THE STRUCTURAL DRAWINGS AND THE ARCHITECTURAL DRAWINGS TO DETERMINE THE FULL EXTENT OF THE WORK. IN CASE OF CONFLICT BETWEEN THE STRUCTURAL DRAWINGS AND OTHER CONTRACT DRAWINGS, CONTRACTOR SHALL BRING SUCH CONFLICTS TO THE ATTENTION OF THE ARCHITECT.
4. WHERE EXISTING WORK IS TO BE CUT, AND/OR SHEETED, CONTRACTOR TO PROVIDE ALL SHEETING, SHORING, NEEDLING, BRACING, WEDGING AND DRY-PACKING AND BE RESPONSIBLE FOR THE SAFETY OF THE STRUCTURE DURING THIS OPERATION AT NO EXTRA COST TO THE OWNER.
5. SHORING AND SHEETING SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER WITH AT LEAST FIVE YEARS EXPERIENCE IN THE DESIGN OF THE ABOVE AND LICENSED IN THE STATE OF NEW JERSEY.
6. CONTRACTOR SHALL BE REQUIRED TO REPAIR AND PATCH ANY AREAS THAT ARE ALTERED OR DAMAGED DURING THE PROCESS OF THE ALTERATION AT NO EXTRA COST TO THE OWNER.
7. CONTRACTOR IS CAUTIONED TO MAKE CONTINUOUS OBSERVATIONS OF EXISTING STRUCTURE DURING THE PERFORMANCE OF HIS WORK. SHOULD HE BECOME AWARE OF ANY SITUATIONS THAT REQUIRE FURTHER INVESTIGATION OR STUDY (SUCH AS CRACKS IN CONCRETE AND PARTITIONS, ADDITIONAL DEFLECTIONS), HE SHALL NOTIFY THE OFFICE OF THE STRUCTURAL ENGINEER.
8. ALL DIMENSIONS INDICATED ON THE DRAWINGS ARE APPROXIMATE AND SHALL NOT BE USED FOR ORDERING AND/OR FABRICATING MATERIALS. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS PRIOR TO ORDERING AND/OR FABRICATING MATERIALS.
9. THE LOCATION OF THE EXISTING COLUMNS, BEAMS AND GIRDERS ARE INDICATED ON PLANS AND ARE BASED ON AVAILABLE INFORMATION. IF EXISTING CONSTRUCTION IS FOUND TO BE DIFFERENT THAN THAT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL BRING VARIATIONS TO THE ATTENTION OF THE ARCHITECT AND PREPARE THE NECESSARY SKETCHES OF THE AS-BUILT CONSTRUCTION AND SUBMIT THE SAME TO THE ARCHITECT FOR REVIEW AND REDESIGN.
10. WHERE EXISTING STRUCTURE IS TO BE CUT, REINFORCEMENT TO BE LOCATED WITH A REBAR LOCATOR PRIOR TO CORING, DRIVING OR CUTTING. LOCATION OF CUTS OR HOLES NOT INDICATED ON STRUCTURAL DRAWINGS TO BE SUBMITTED FOR REVIEW.
11. SHOP DETAILS FOR ALL WORK TO BE SUBMITTED FOR REVIEW.

TIMBER PILES

1. ALL PILES SHALL BE CLASS "A" WITH AN 8" MINIMUM TIP DIAMETER AND CONFORM TO APPLICABLE PROVISIONS OF ASTM DESIGNATION D25, "STANDARD SPECIFICATION FOR ROUND TIMBER PILES".
2. ALL PILES SHALL BE 50'-0" LONG AND DRIVEN TO A DESIGN CAPACITY OF 25 TONS.
3. ALL PILES SHALL BE PRESSURE TREATED WITH CREOSOTE IN ACCORDANCE WITH AMERICAN WOOD PRESERVERS ASSOCIATION (AWPA) STANDARD C3.
4. ALL PILE CAPS ARE CENTERED UNDER COLUMNS UNLESS C.G. (CENTER OF GRAVITY) IS INDICATED ON PLAN.

AUGERED CAST-IN-PLACE PILES

1. PILES SHALL BE 16" DIAMETER MINIMUM INSTALLED TO 75 OR 100 TONS BEARING CAPACITY. SEE FOUNDATION PLAN FOR LOCATIONS. SEE TYPICAL DETAILS FOR REINFORCING. SEE GEOTECHINICAL REPORT FOR LENGTH OF PILE.
2. PILES SHALL BE INSTALLED WITH 4000 PSI MORTAR INJECTED THROUGH THE AUGER SHAFT UNDER PRESSURE TO PILE TIP ELEVATION SHOWN ON PLAN, SCHEDULE OR TYPICAL DETAILS.
3. NO PILE SHALL BE INSTALLED UNTIL LOAD TESTS ARE COMPLETED AND ACCEPTED BY THE ARCHITECT & ENGINEER. ALL PILES SHALL BE INSTALLED TO COMPLY WITH LOAD TEST RESULTS.
4. ALL PILE CAPS ARE CENTERED UNDER COLUMNS UNLESS C.G. (CENTER OF GRAVITY) IS INDICATED ON PLAN.

SPRAY-ON FIREPROOFING

1. FIREPROOFING MATERIAL SHALL BE ASBESTOS-FREE, CEMENTITIOUS TYPE AS MANUFACTURED BY W. R. GRACE CO. OR EQUAL.
2. THICKNESS OF SPRAY-ON FIREPROOFING SHALL BE IN ACCORDANCE WITH UNDERWRITER'S LABORATORIES INC. FIRE RESISTANCE RATINGS FOR UNRESTRAINED ASSEMBLIES.
3. ROOF ASSEMBLY LESS THAN 20 FEET IN HEIGHT TO LOWEST MEMBER SHALL CONFORM TO UNDERWRITER'S LABORATORIES INC. DESIGN NUMBER P732, ONE AND ONE-HALF HOUR RATING.
4. FLOOR ASSEMBLY SHALL CONFORM TO UNDERWRITER'S LABORATORIES INC. DESIGN NUMBER D925, TWO-HOUR RATING.
5. "W" COLUMNS SHALL CONFORM TO UNDERWRITER'S LABORATORIES INC. DESIGN NUMBER X772, THREE-HOUR RATING.
6. STEEL PIPE AND TUBE COLUMNS SHALL CONFORM TO UNDERWRITER'S LABORATORIES INC. DESIGN NUMBER X771.

INTUMESCENT PAINT-FIREPROOFING (SEE SPEC. SECTION 07811 FOR BALANCE OF INFO)

1. COLUMNS WHICH ARE TO RECEIVE INTUMESCENT PAINT-FIREPROOFING AS INDICATED ON FRAMING PLANS AND ARCHITECTURAL DWGS, ARE TO CONFORM TO UNDERWRITERS LABORATORY DESIGN NUMBER N610 FOR THREE-HOUR RATING.

GALVANIZING

1. AFTER FABRICATION AND INSPECTION, CLEAN STEEL WORK TO BE GALVANIZED. REMOVE LOOSE RUST, LOOSE MILL SCALE AND SPLATTER, SLUG OR FLUX DEPOSITS. CLEAN STEEL IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL (SSPC) SP6 "COMMERCIAL BLAST CLEANING."
2. IMMEDIATELY AFTER SURFACE PREPARATION, HOT-DIP GALVANIZE ALL EXTERIOR EXPOSED STRUCTURAL SHAPES, PLATES AND BARS ACCORDING TO ASTM A123.
3. AFTER ERECTION TOUCH UP ALL DAMAGE TO GALVANIZED SURFACES USING GALVANIZING REPAIR PAINT MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION DOD-P-21035A.

WHR ARCHITECTS

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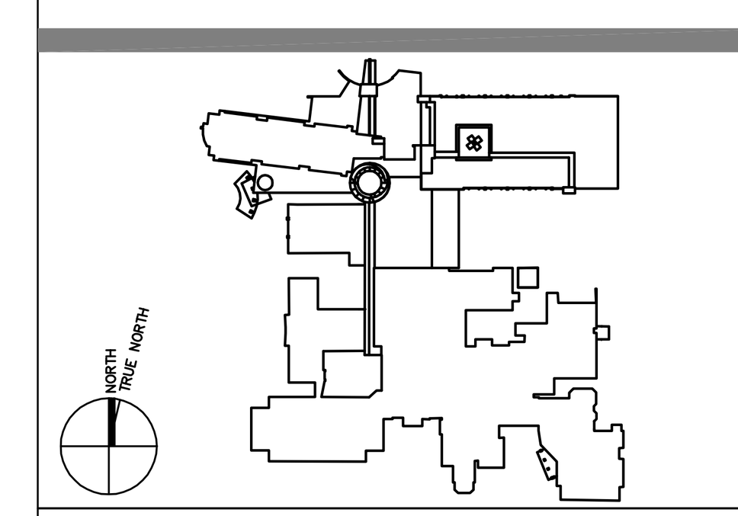
NO.	DATE	DESCRIPTION
	09-19-05	ISSUE FOR DCA SD REVIEW
	12-21-05	DD PRICING
	01-13-06	REVISED DD
	03-15-06	PACKAGE No. 5 GARAGE-ISSUED FOR GMP
	03-22-06	PACKAGE No. 6 FOUNDATION-ISSUED FOR GMP
	05-01-06	BID PACKAGE No. 9
	05-09-06	REVISED FOUNDATION BID PACKAGE
	06-01-06	DCA ISSUE
	06-12-06	STRUCTURAL PRICING UPDATE
	06-26-06	ISSUED FOR GMP - B.P. #10
1	07-21-06	ADDENDUM #1
4	10-13-06	(VE) FOR NORTH-WEST TOWER

DI STASIO & VAN BUREN INC.
STRUCTURAL ENGINEERS
1160 ROUTE 22 WEST
MOUNTAINSIDE, NJ 07092
Tel (908) 688-7887 Fax (908) 688-7969

NJ Cert. of Authorization No. GA 276710
James F. Loudon, PE NJ Cert. No. 28704
Paul P. Panzarino, PE NJ Cert. No. 42798



KEY PLAN

Jersey Shore University Medical Center
MEMBER OF THE MERIDIAN HEALTH FAMILY

ADDITIONS & RENOVATIONS

NEPTUNE, NEW JERSEY

GENERAL NOTES 1

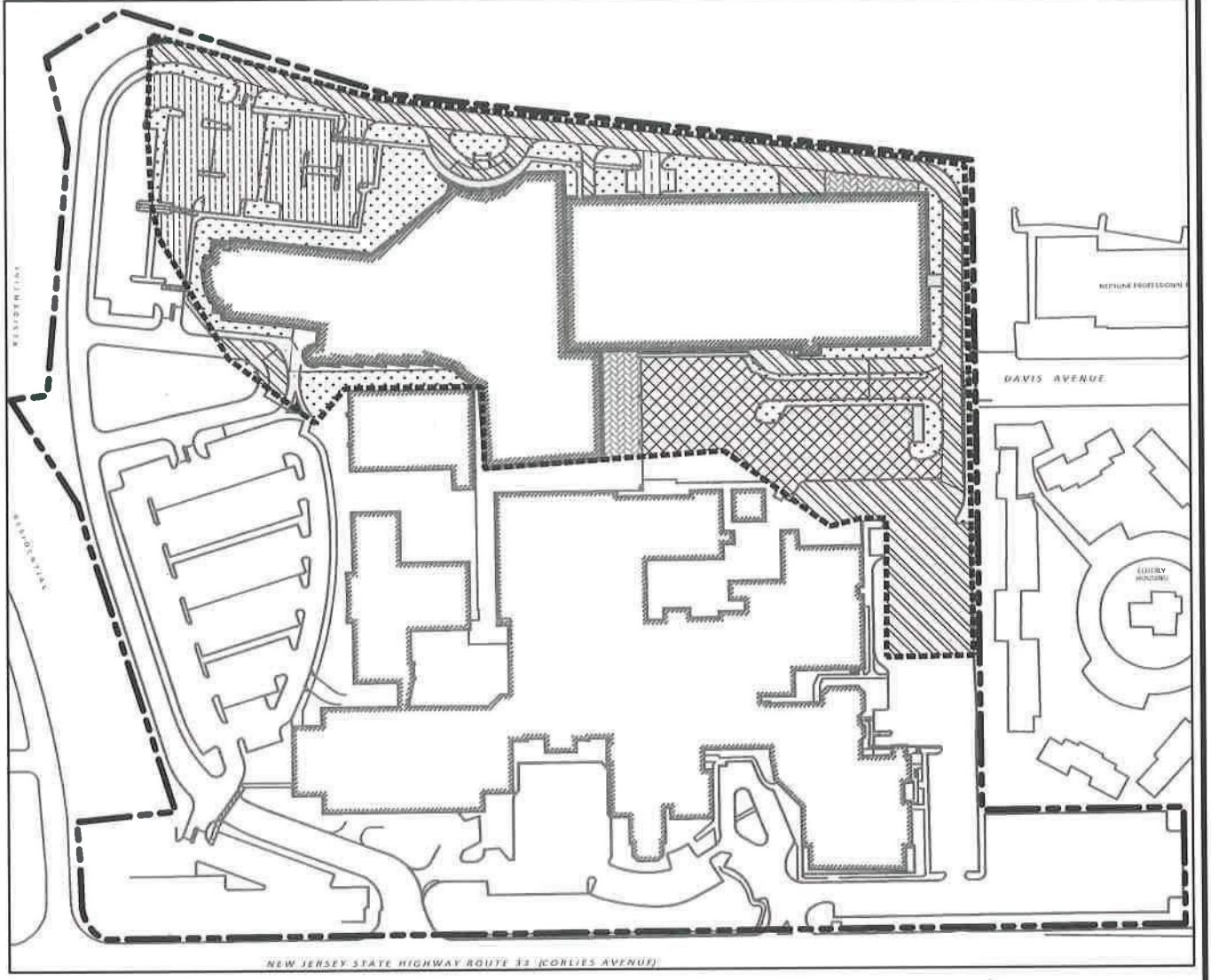
Date: 06-26-2006
Architect of record: CHARLES H GRIFFIN
State: NJ
Registration no.: 21AI01557600

JOB NO.: H04043-00
PHASE: DD #3
DATE: 06/26/06
DRAWING NO: S5.10

04-077

ATTACHMENT D

Landfill Exhibit prepared by the Elm Group



LEGEND

- SITE BOUNDARY (APPROXIMATE)
- RESTRICTED AREA
- EXISTING BUILDING
- CIRCULATION ROADS - 2 IN. BITUMINOUS CONCRETE ON 5 IN. BIT. STABILIZED BASE COURSE ON 8 IN. DENSE GRADED AGGREGATE ON 12 IN. GRANULAR SUB-BASE
- PARKING - 2 IN. BIT. CONCRETE ON 4 IN. BIT. STABILIZED BASE COURSE ON 6 IN. DENSE GRADED AGGREGATE BASE ON 12 IN. GRANULAR SOIL SUB-BASE
- LANDSCAPED AREAS - 6 IN. OF TOP SOIL ON 18 IN. CLEAN STRUCTURAL FILL
- GROUND FLOOR OF BUILDING - 8 IN. TO 10 IN. OF CONCRETE ON 4 IN. TO 6 IN. OF STONE
- TRUCK LOADING DOCK AREA - 2 IN. BIT. CONCRETE ON 6 IN. BIT. STABILIZED BASE COURSE ON 8 IN. DENSE GRADED AGGREGATE BASE COURSE ON 12 IN. GRANULAR SUB-BASE
- CONCRETE - 4 IN. CONCRETE ON 4 IN. STONE
- CONCRETE - 8 IN. CONCRETE ON 8 IN. STONE ON 12 IN. GRANULAR BASE

SOURCES:

1. A PLAN ENTITLED "TEST BORING AND TEST PIT LOCATION PLAN - JERSEY SHORE MEDICAL CENTER - PRELIMINARY SITE ASSESSMENT - NEPTUNE TOWNSHIP, MONMOUTH COUNTY, NJ," BY FRENCH AND PARRELLO ASSOCIATES, P.A., DATED FEBRUARY 6, 2004.
2. DRAWING ENTITLED "EXISTING CONDITIONS - MERIDIAN HEALTH - JERSEY SHORE UNIVERSITY MEDICAL CENTER, 1945 STATE HIGHWAY ROUTE 33, TOWNSHIP OF NEPTUNE, MONMOUTH COUNTY, NJ", BY DEWBERRY-GOODKIND, INC., DATED 6/13/05, PROJECT NO. 4075, SHT. NO. V-101.
3. DRAWING ENTITLED "BORING LOCATION PLAN - MERIDIAN HEALTH - JERSEY SHORE UNIVERSITY MEDICAL CENTER, 1945 STATE HIGHWAY ROUTE 33, TOWNSHIP OF NEPTUNE, MONMOUTH COUNTY, NJ", BY DEWBERRY-GOODKIND, INC., DATED MAY 11, 2005.

0 200 400

SCALE: 1"=200'

TITLE: EXHIBIT B-1B

RESTRICTED AREA ENGINEERING CONTROLS

LOCATION: JERSEY SHORE MEDICAL CENTER
1945 STATE HWY. ROUTE 33
NEPTUNE TOWNSHIP, NEW JERSEY

DATE: 2/7/14

FILENAME: 204093_Redevelopment_REV1

LAYOUT: EXHIBIT B-1B

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