STORMWATER MANAGEMENT OPERATIONS & MAINTENANCE MANUAL

for

Manhattan Beach Phase I Urban Renewal, LLC

Proposed Townhouse Development

Rosewell Street
Block 161.02, Lots 20, 23, 24 & 24.01
City of South Amboy
Middlesex County
New Jersey

Prepared by:

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PART I: PROJECT DETAILS

A. Introduction and Description of Facilities:

The proposed site improvements consist of the development of 196 residential townhouse units. The buildings will have a combined total footprint of 119,906 SF, with 7.24 acres of impervious surface, and 14.37 acres of land disturbance. The proposed project will also include all associated site improvements including parking areas, landscaping, lighting, amenity areas, stormwater management facilities, and utilities.

The site is bordered by undeveloped land to the north, by the Raritan Bay to the east, by the Middlesex County Utility Authority - South Amboy Pump Station and John T. O'Leary Boulevard to the south with residential uses beyond, and by Rosewell Street to the west with residential uses beyond. The site contains one (1) existing aboveground stormwater basin that was constructed as part of an offsite development and is currently encompassed within an easement owned by the City. The existing basin is proposed to remain and will continue to be maintained by the City.

The stormwater management facilities include twenty-seven (27) Contech Filterra HC Peak Diversion Manufactured Treatment Devices (80% TSS Removal) and associated inlets, manholes and conveyance pipes.

This manual consists of three parts. The first part includes the introduction, project description, and a list of project contacts. The second part provides the operation and maintenance instructions for the facilities and equipment. The third part (Appendix) provides information regarding the inspection and maintenance activities. **This manual shall run with the property and be recorded as part of the deed.**

B. Project Contacts:

The applicant is responsible to maintain a detailed log of all preventative and corrective maintenance actions for the constructed stormwater facilities incorporated into the design, including record of all inspections and copies of all maintenance-related work orders. The applicant is also responsible for maintenance to evaluate the effectiveness of the maintenance

plan at least once per year and adjust the plan and deed as needed. The applicant shall retain a copy of this report onsite should a public entity request this report or documentation of said maintenance in the future.

Applicant:
Manhattan Beach Phase 1 Urban Renewal, LLC
32 Mount Kemble Avenue
Morristown, NJ 07960

Design Engineer:
Attn: Thomas J. Muller, PE, PP
Dynamic Engineering Consultants, P.C.
1904 Main Street
Lake Como, NJ 07719

Party Responsible for Maintaining Stormwater Management Facility:
Manhattan Beach Phase 1 Urban Renewal, LLC
32 Mount Kemble Avenue
Morristown, NJ 07960
and
Homeowner's Association (HOA) – To Be Established at a Future Date

As previously mentioned, this manual, including any future revisions, must be recorded upon the deed of record of the property.

C. Proposed Best Management Practices:

Contech Filterra HC Manufactured Treatment Device

Stormwater runoff from the majority of the proposed improvements on site is collected by twenty-seven (27) proposed Contech Filterra HC Peak Diversion Manufactured Treatment Devices. These devices have been certified by the NJDEP to remove 80% of total suspended solids from the stormwater runoff generated by the water quality storm. The on-site stormwater conveyance network has been designed to direct the water quality storm to the

Contech Filterra HC Peak Diversion Manufactured Treatment Device and bypass larger storm events. Illustrations of the proposed devices have been provided in the appendix of this report. The inspection and maintenance procedures for this device are also provided in the appendix of this report.

PART II: INSPECTION AND MAINTENANCE:

A. Routine Inspection and Maintenance of the Stormwater Management Facilities:

All stormwater management facilities have been designed to control stormwater and reduce flooding and degradation of water quality. Without proper routine inspection and maintenance, the facilities may lose some or all of their capability to function to their full capacity. Lack of adequate maintenance at these facilities could lead to system failures.

A consulting Professional Engineer should perform regularly scheduled maintenance inspections of the stormwater facilities at least one (1) time each year. The primary purpose of these inspections is to ascertain the operational condition and safety of the facilities, particularly the condition of the inlet/outlet structures and other safety-related aspects. Inspections will also provide information on the effectiveness of regularly scheduled Preventative Maintenance Procedures, and will help to identify where changes in the extent and scheduling of the procedures are warranted. Finally, the facility inspections should also be used to determine the need for and timing of Corrective Maintenance procedures.

Routine maintenance is further broken down into two (2) categories: Preventative and Corrective. Listed below are the Preventative and Corrective Maintenance Procedures to be performed on a routine basis:

1. <u>Preventive Maintenance Procedures</u>:

   The purpose of Preventative Maintenance is to maximize the effectiveness of the stormwater management facilities so that they remain operational and safe as often as practicable, and to minimize the need for emergency or corrective maintenance. These procedures are as follows:

a) Maintenance of Adjacent Areas

Grass areas, trees, and shrubs adjacent to the stormwater facilities require periodic fertilizing, de-thatching and soil conditioning in order to maintain healthy growth and to provide bank stabilization. The application of fertilizers should follow manufacturer's instructions to reduce run-off of these compounds into the stormwater facilities. Additionally, provisions should be made to re-seed and re-establish grass cover in areas damaged by sediment accumulation, stormwater flow, or other causes. These tasks should be performed, or at least evaluated, on a quarterly basis.

b) Removal and Disposal of Trash/Debris and Sediment:

All stormwater management components expected to receive and/or trap debris and sediment must be inspected for clogging and excessive debris and sediment accumulation at least four times annually as well as after every storm exceeding one inch of rainfall. Such components may include the stormwater conveyance network (piping & inlet), headwalls, and scour holes.

These stormwater management components shall be visually inspected for the accumulation of excessive sediment as well as damage in the form of cracking, erosion and rutting. Sediment buildup within the stormwater conveyance network shall be removed with the use of flushing. Sediment laden water is to be captured with the use of a pipe plug, or approved equal, prior to discharge and simultaneously pumped out with the use of pump with sediment bag. Sediment should be disposed of in accordance with all applicable local, state and federal regulations.

Removal of trash and debris will prevent possible damage to trash racks and outlet structure openings and eliminate potential mosquito breeding habitats. Debris and trash must be properly hauled off the site and transferred to an approved disposal site.

The stormwater facilities should also be evaluated for excessive deposition of sediment. Accumulated sediment should be removed utilizing light weight equipment to avoid soil compaction before it threatens the storage volume of the stormwater facilities. Before de-sedimentation activities are performed, consideration should be given to evacuating all standing water from the stormwater facilities. This may be accomplished by clearing any blocked openings of the outlet structure or by mechanical means (pumping). Disposal of discharged water and sediment must comply with all local, county, state and federal regulations. Only suitable disposal sites should be utilized. If stable soil conditions exist on site, sediment deposition should not be an excessive maintenance issue. Should a recurrent stabilization situation develop, the inspector should identify the upstream sources of sediment and recommend required stabilization measures.

Access has been provided for inspection and maintenance of the stormwater facilities and their components.

c) Elimination of Potential Mosquito Breeding Habitats:

The most effective mosquito control program is one that eliminates potential breeding habitats. Almost any stagnant pool of water can be attractive to mosquitoes, and may become the source of a large mosquito population. A maintenance program dedicated to eliminating potential breeding areas is preferable to chemical means of controlling mosquitoes. The most important maintenance functions, is removal of all obstructions to natural flow patterns before stagnant water conditions can develop.

d) Parking Lot Maintenance:

This management measure involves employing pavement cleaning practices, such as parking lot sweeping on a regular basis, to minimize pollutant export to the stormwater conveyance system and downstream of the discharge. These cleaning practices are designed to remove sediment, debris, and other pollutants from access drive and parking lot surfaces that are a potential

source of pollution impacting urban waterways. Mechanical machines that use vacuum assisted dry sweeping to remove particulate matter shall be utilized as these have the ability to remove finer sediment particles. Parking lots and access drives shall be swept/vacuumed at least once a month. The disposal of the swept material must be properly hauled off the site and transferred to an approved disposal site.

e) Observation After Rainfall:

This management measure involves monitoring the amount of time the stormwater facilities take to drain to ensure the stormwater facilities are working properly. The stormwater facilities should drain in less than 72 hours after each rain event. If significant increases or decreases are observed in the drawdown time, a qualified licensed Professional Engineer shall be contacted to evaluate the stormwater facilities.

f) Vegetation Maintenance:

All landscaped areas adjacent to the stormwater facilities shall be periodically inspected a minimum of once per month and every two weeks during growing season or after each mowing session. Mowing shall occur twice a year in the spring and fall seasons to promote native growth. Clippings from the bi-annual mowing operations shall be removed and disposed of in accordance with all local, state and federal regulations. Reseeding, if required, shall occur within spring or early fall. Summer and fall seeding can be successful with a light mulching of weed-free straw to conserve moisture.

All landscaped areas shall be inspected for invasive plant species. Invasive species should be removed immediately and properly disposed of at an approved disposal site.

2. Corrective Maintenance Procedures:

a) Removal of Debris and Sediment:

Sediment, debris and trash which threaten the discharge capacity of the stormwater facilities should be removed immediately with the use of light weight equipment to avoid soil compaction and properly disposed. As noted previously, it is recommended that all water be evacuated from the stormwater facilities with a pump before any significant amount of sediment, settled debris or trash is removed from the stormwater facilities. The lack of an available disposal site should not delay the removal of trash, debris and sediment. Temporary disposal sites should be utilized if necessary.

b) Structural Repairs:

Structural damage to outlet and inlet structures, access hatches and roadways as a result of vandalism, flood events, settlement or other causes must be repaired promptly. The urgency of the repairs will depend upon the nature of the damage and its effects on the safety and operation of the facility. The analysis of structural damage and the design and performance of structural repairs should only be undertaken by the consulting Professional Engineer.

c) Extermination of Mosquitoes:

If neglected, stormwater facilities can become an ideal mosquito breeding area. The extermination of mosquitoes will usually require the services of the County Mosquito Commission. If mosquito control in the facility becomes necessary, the preventative maintenance program should be re-evaluated, and more emphasis should be placed on control of mosquito breeding habitats.

d) Erosion Repair:

Vegetative cover or other protective measures are necessary to prevent the loss of soil due to the forces of wind and water. Where a re-seeding program has not been effective in maintaining a non-erosive vegetative cover, or other factors have exposed soils to erosion, corrective steps should be initiated to prevent further loss of soil that may result in danger to the stability of the facility. Soil loss can be controlled by a variety of materials and methods, including rip-rap, gabion lining, geotextile fabrics, sod, seeding, concrete lining and re-grading.

e) Snow and Ice Removal:

Accumulations of snow and ice can threaten the functioning of the inlets, outlets and emergency spillways. Provision of the equipment, material and personnel to monitor and remove snow and ice from critical areas will assure the function of the facility during the winter months.

3. Recording and Logging of all Maintenance Activities:

The recording of all maintenance work and inspections provides valuable data on the facility's condition. Review of this information will also help to establish more efficient and beneficial maintenance procedures and practices. All recorded information should be directed to the owners of the stormwater facilities for review and subsequent follow-up on recommendations. Data obtained from informal inspections should be retained; however, this data does not have to be submitted to NJDEP. A copy of all records and logs of maintenance activities shall be submitted to the Borough Engineer annually for review.

4. Summary of Maintenance Procedures:

Preventative Maintenance

a) Maintenance of Adjacent Areas
b) Removal and Disposal of Trash/Debris and Sediment
c) Elimination of Mosquito Breeding Habitats
d) Parking Lot Maintenance
e) Observation After Rainfall
f) Vegetation Maintenance

Corrective Maintenance

a) Removal of Debris and Sediment
b) Structural Repairs
c) Extermination of Mosquitoes
d) Erosion Repair
e) Snow and Ice Removal

B. Maintenance Equipment and Materials

Note: Only light equipment is allowed to be used within the stormwater facilities to prevent damage.

1. Grass Maintenance Equipment

a) Riding Mowers
b) Hand Mowers
c) Gas Powered Trimmers
d) Gas Powered Edgers
e) Seed Spreaders
f) Fertilizer Spreaders
g) De-Thatching Equipment
h) Pesticide and Herbicide Application Equipment

i) Grass Clipping and Leaf Collection Equipment

2. Transportation Equipment

a) Trucks for Transportation of Materials
b) Trucks for Transportation of Equipment
c) Vehicles for Transportation of Personnel

3. Debris, Trash and Sediment Removal Equipment

a) Backhoe
b) Portable Pump for dewatering with sediment bag

4. Miscellaneous Equipment

a) Shovels
b) Rakers
c) Picks
d) Wheel Barrows
e) Gloves
f) Brooms

5. Standard Mechanics Tools

6. Tools for Maintenance of Equipment

7. Materials

a) Topsoil
b) Fill
c) Seed
d) Soil Amenities (Fertilizer, Lime, etc.)
e) Chemicals (Pesticides, Herbicides, etc.)
f) Mulch

g) Spare Parts for Equipment

9. Parking Maintenance Equipment

a) Sweeping/Vacuuming Equipment
b) Snow Plowing Equipment
c) Snow Shovels

C. Checklists and Logs

The Appendix of this report contains sample checklists and logs regarding various aspects of the stormwater facilities maintenance and inspection. A brief description of the use of each form is listed below:

1. "Maintenance Work Order and Checklist" – a comprehensive form outlining both required and completed maintenance work.
2. "Maintenance Log" – a summary table for recording of all maintenance work at the site.
3. "Inspection Log" – a summary table for recording the results of all inspection of the stormwater facilities.

D. Estimated Maintenance Costs and Tasks

The following is a summary of the required maintenance tasks and associated costs in written and tabular form:

- Inspections to be performed by a consulting engineer on an annual basis. - **$1,500.00.**
- Inspections to be performed by the property owner and/or a maintenance designee on a monthly basis and/or after a storm event exceeding 1 inch of rainfall– **Minimal cost associated – Owners responsibility - $500.00.**
- Stormwater conveyance system outlet control structure access for debris removal to be performed on an annual basis and/or as inspection routine dictates - **$2,000.00.**
- Surface debris removal including garbage and organic matter to be performed in conjunction with lawn and grounds maintenance, includes leave removal in the Fall and

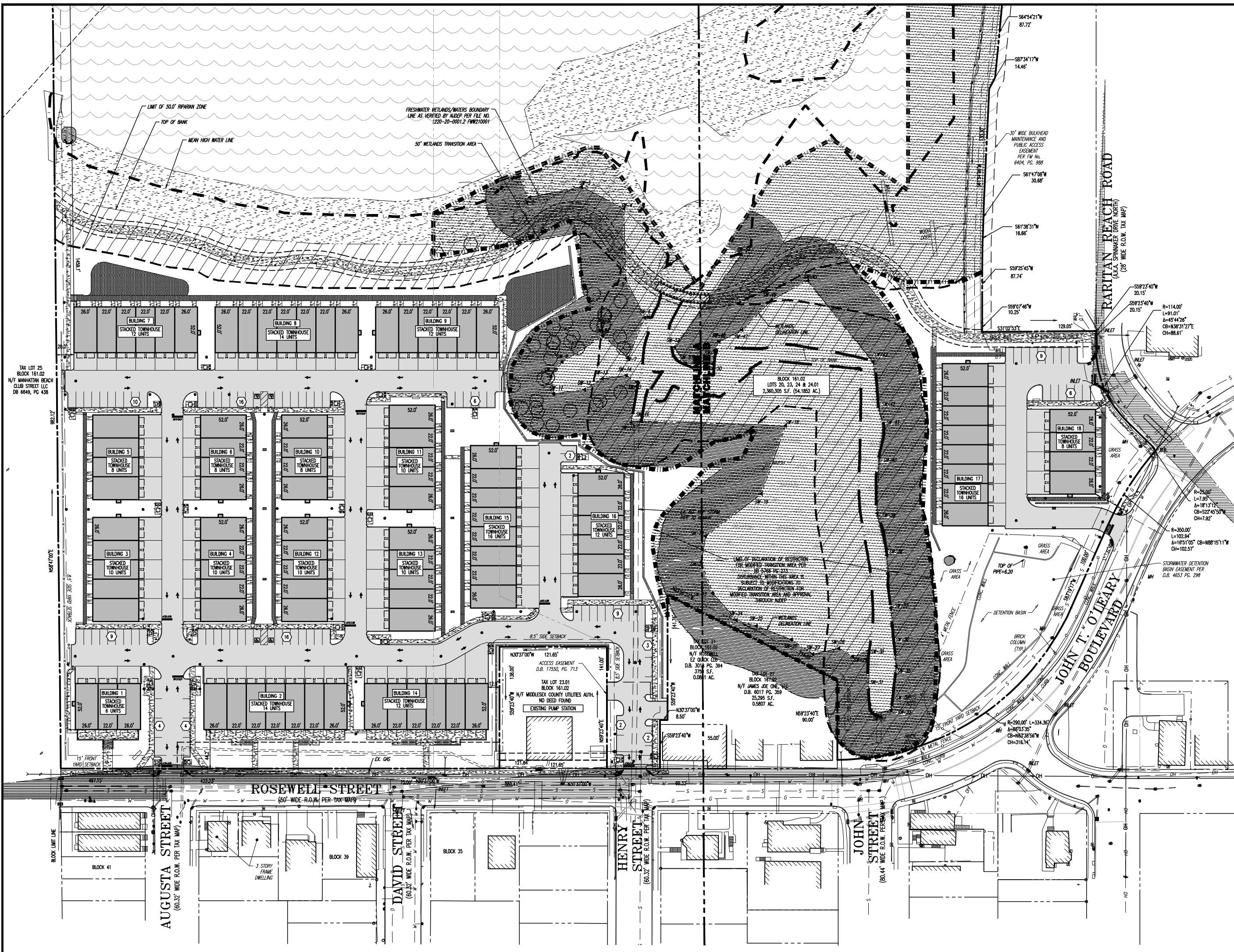
removal of excessive amounts of snow, if necessary, in the Winter. These tasks are encouraged as necessary to maintain safe operating conditions (twice a month from Spring through Winter recommended or on as needed basis) - **$1,000.00.**

Maintenance Schedule Summary

Task Identification	Task Frequency	Task Estimated Cost
Inspection by licensed professional consulting engineer	Once (1) per year	$1,500.00
Inspection by property owner and/or maintenance designee	Once (1) per month (or after a storm event exceeding 1 inch of rainfall)	$500.00
Debris removal from stormwater conveyance system (inlets, pipes, manholes, flared end sections, and outlet control structure)	Once (1) per year	$2,000.00
Surface debris removal (garbage & organic matter) including leaves in the Fall and snow in the Winter	Twice (2) per month (or on needed basis)	$1,000.00

APPENDIX

SITE MAPS
(WITH BMP'S IDENTIFIED)



GRAPHIC SCALE

-50 0 25 50 100 200

(IN FEET)
1 INCH = 50 FT.

TOTAL RESIDENTIAL UNITS = 196 UNITS

LEGEND

▒	WATER	☐	GRASS AREAS
░	SAND	░	CONCRETE
▓	ASPHALT	▓	PROP. BUILDING
▦	LIMIT OF EXISTING DECLARATION OF RESTRICTION FOR MODIFIED TRANSITION AREA PER DB 5768, PG 273 (270,381 SF, 6.21 AC.)	▤	50' WETLAND TRANSITION AREA
▧	50' RIPARIAN ZONE	▨	EX. BUILDING

SIGNAGE CHART

SIGN	REQUIREMENTS		EXISTING		PROPOSED	
MONUMENT [1]	NUMBER OF SIGNS:	ONE (1)	NUMBER OF SIGNS:	N/A	NUMBER OF SIGNS:	TWO (2) **(V)**
	MAXIMUM SIGN AREA:	75 SF	SIGN AREA:	N/A	SIGN AREA:	19.8 FT **(V)**
	MAXIMUM SIGN HEIGHT:	10 FT	SIGN HEIGHT:	N/A	SIGN HEIGHT:	7 FT
WALL	NUMBER OF SIGNS:	N/S	NUMBER OF SIGNS:	N/A	NUMBER OF SIGNS:	TBD
	MAXIMUM SIGN AREA:	N/S	SIGN AREA:	N/A	SIGN AREA:	TBD
	MAXIMUM SIGN HEIGHT:	25 FT [6]	SIGN HEIGHT:	N/A	SIGN HEIGHT:	TBD
	MINIMUM CLEARANCE:	[6]	SIGN CLEARANCE:	N/A	SIGN CLEARANCE:	TBD
	MAXIMUM PROJECTION:	15 IN [5]	SIGN PROJECTION:	N/A	SIGN PROJECTION:	TBD

N/S: NO STANDARD N/A: NOT APPLICABLE (E): EXISTING NON-CONFORMANCE (V): VARIANCE

[1] A COMMUNITY OF STACKED TOWNHOMES SHALL BE PERMITTED ONE MONUMENT SIGN AT THE INTERSECTION OF AUGUSTA STREET AND ROSEWELL STREET. THE SIGN SHALL BE PLACED IN A LOCATION THAT DOES NOT INTERFERE WITH SITE TRIANGLES. THE SIGN SHALL HAVE A BASE NO GREATER THAN 12 FEET IN LENGTH, 2.5 IN WIDTH AND 3 IN HEIGHT. THE MESSAGE BOARD PORTION OF THE MONUMENT SIGN SHALL NOT EXCEED AN OVERALL HEIGHT OF 10 FEET MEASURED FROM GRADE AND A TOTAL AREA OF 75 SQUARE FEET PER SIDE. THE MESSAGE BOARD MAY BE TWO-SIDED. THE MESSAGE ON THE MESSAGE BOARD SHALL BE LIMITED TO THE COMMUNITY NAME AND LOGO AND THE LOGO OF THE DEVELOPER. THE MESSAGE SHALL BE BACK LIT. A RENDERING OF THE SIGN SHALL BE PROVIDED FOR REVIEW AND APPROVAL AT THE TIME OF SUBMISSION OF THE REDEVELOPMENT APPLICATION TO THE PLANNING BOARD. (BCD REDEVELOPMENT PLAN §3.4.D.e)

[2] A POLE MOUNTED MONUMENT SIGN SHALL BE PROHIBITED. (BCD REDEVELOPMENT PLAN §3.4.D.e)

[3] SIGNS PAINTED DIRECTLY UPON THE EXTERIOR WALLS OF ANY PRINCIPAL OR ACCESSORY BUILDING OR STRUCTURE SHALL BE PROHIBITED. (BCD REDEVELOPMENT PLAN §3.4.C)

[4] UNLESS OTHERWISE ADDRESSED WITHIN THIS PLAN, SIGNS MAY BE PROVIDED CONSISTENT WITH THE PROVISIONS OF SECTION 53-79 (35) OF THE CITY'S LAND DEVELOPMENT ORDINANCE. (BCD REDEVELOPMENT PLAN §3.6.D)

[5] ATTACHED SIGNS SHALL BE AFFIXED PARALLEL TO THE WALL TO WHICH THEY ARE ATTACHED AND THE FACE OF THE SIGN SHALL PROJECT NO MORE THAN 15 INCHES FROM THE SURFACE OF THE WALL, AND IN NO CASE SHALL ANY OVERHANG VIOLATE OR EXTEND BEYOND A PROPERTY LINE. (§53-79.A(35)(b))

[6] THE UPPERMOST PART OF AN ATTACHED SIGN SHALL NOT EXCEED THE BASE OF THE SECOND-FLOOR WINDOWSILL IN A TWO-OR-MORE-STORY STRUCTURE, OR THE BASE OF THE ROOF OR 25 FEET, WHICHEVER IS LOWER, IN EITHER A ONE-STORY STRUCTURE OR A STRUCTURE WITHOUT WINDOWS. THE UPPERMOST PART OF A FREESTANDING SIGN SHALL NOT EXCEED 25 FEET. THE LOWEST PORTION OF ANY SIGN WHICH PROJECTS ABOVE AN AREA TRAVERSED EITHER BY MOTOR VEHICLES OR PEDESTRIANS SHALL BE AT LEAST 15 FEET. (§53-79.A(35)(c))

[7] SIGN AREA SHALL INCLUDE ALL LETTERING, WORDING, COLORING AND ACCOMPANYING DESIGNS AND SYMBOLS, TOGETHER WITH THE BACKGROUND, WHETHER OPEN OR ENCLOSED, BUT NOT INCLUDING ANY SUPPORTING FRAMEWORK AND BRACING INCIDENTAL TO THE DISPLAY ITSELF. A FREESTANDING SIGN WITH TWO EXPOSURES SHALL HAVE A TOTAL SIGN AREA CONSISTING OF THE AREA OF ONE SIDE OF THE SIGN, BUT BOTH SIDES MAY BE USED. STREET NUMBER DESIGNATIONS, POSTAL BOXES, FAMILY NAMES ON RESIDENCES, ON-SITE TRAFFIC DIRECTIONAL AND PARKING SIGNS, SIGNS POSTING PROPERTY AS "PRIVATE PROPERTY," "NO HUNTING" OR SIMILAR PURPOSES AND "DANGER" SIGNS AROUND UTILITY AND OTHER DANGER AREAS ARE PERMITTED BUT ARE NOT TO BE CONSIDERED IN CALCULATING THE SIGN AREA. (§53-79.A(35)(h))

GENERAL NOTES

1. THIS PLAN HAS BEEN PREPARED BASED ON REFERENCES INCLUDING:

ALTA/NSPS LAND TITLE SURVEY
DATED 06/19/2020, LAST REVISED 08/01/2024
PREPARED BY DYNAMIC SURVEY, LLC
1904 MAIN STREET
LAKE COMO, NJ 07719
SURVEYOR FILE NO: 19-8679

2. APPLICANT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
32 MOUNT KEMBLE AVENUE
MORRISTOWN, NJ 07960

3. OWNER: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
32 MOUNT KEMBLE AVENUE
MORRISTOWN, NJ 07960

4. PARCEL DATA: BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY
MIDDLESEX COUNTY, NJ

5. ZONE: BEACH CLUB DISTRICT (BCD) REDEVELOPMENT PLAN

6. EXISTING USE: VACANT (ABANDONED FEATURES)

7. PROPOSED USE: TOWNHOUSES **(BCD REDEVELOPMENT PLAN §3.4.A.2)**

8. SCHEDULE OF ZONING REQUIREMENTS (BCD REDEVELOPMENT PLAN §3.5 TABLE 6)

ZONE REQUIREMENT	BCD REDEVELOPMENT AREA	EXISTING	PROPOSED
MINIMUM LOT AREA	1 GROSS Ac [1]	2,360,305 SF (54.1852 AC.)	2,360,305 SF (54.1852 AC.)
MAXIMUM DENSITY	12 UNITS/GROSS Ac [2]	N/A	3.62 UNITS/GROSS AC.
MINIMUM FRONT YARD SETBACK	15 FT	8.9 FT	19.5 FT
MINIMUM REAR YARD SETBACK	20 FT	1,906.0 FT	1,459.1 FT
MINIMUM SIDE YARD SETBACK	8.5 FT	18.1 FT	12.9 FT
MINIMUM DISTANCE BETWEEN BUILDINGS (SIDE TO SIDE)	10 FT	N/A	20 FT
MINIMUM DISTANCE BETWEEN BUILDINGS (FRONT TO BACK)	30 FT	N/A	40 FT
MINIMUM DISTANCE BETWEEN BUILDINGS (SIDE TO BACK)	20 FT	N/A	59.5 FT
MAXIMUM BUILDING HEIGHT	48 FT / 3.5 STORIES [4]	1 STORY	<100 FT/ 8 STORIES
MAXIMUM BUILDING COVERAGE	10% [3]	0.19% (4,432 SF)	5.08% (119,906 SF)
MAXIMUM IMPERVIOUS COVERAGE	20% [3]	4.48% (105,641 SF)	13.4% (315,176 SF)

N/S: NO STANDARD N/A: NOT APPLICABLE (E): EXISTING NON-CONFORMANCE (V): VARIANCE

[1] THE GROSS AREA OF A PARCEL MAY INCLUDE PORTIONS OF THE PARCEL LOCATED EAST OF THE BULKHEAD OR OTHERWISE RESTRICTED DUE TO FEATURES OR CONDITIONS THAT DO NOT PERMIT OR LIMIT THE PLACEMENT OF IMPROVEMENTS IMMEDIATELY THEREON. THE PERMITTED NUMBER OF RESIDENTIAL UNITS MAY BE FURTHER DEFINED IN THE REDEVELOPMENT AGREEMENT. DENSITY AND COVERAGE WILL CONTINUE TO THE TRACKED BASED ON THE OVERALL AREA OF THE MANHATTAN BEACH CLUB DISTRICT. (BCD REDEVELOPMENT PLAN §3.5 TABLE 6)

[2] THERE SHALL BE A DENSITY BONUS OF 1 ADDITIONAL UNIT PER UPLAND ACRE FOR EVERY 2 ADDITIONAL OFF-STREET PARKING SPACES PROVIDED FOR PUBLIC USE. THE DENSITY CALCULATION SHALL INCLUDE ALL ACREAGE OWNED OR CONTROLLED BY ANY REDEVELOPER, REGARDLESS OF WHETHER ALL OF SUCH LANDS ARE DEVELOPABLE OR ARE USED FOR DEVELOPMENT. (BCD REDEVELOPMENT PLAN §3.5 TABLE 6)

[3] IMPERVIOUS AND BUILDING COVERAGE SHOULD BE CALCULATED USING THE GROSS ACREAGE/OVERALL AREA OF A PARCEL, INCLUDING PORTIONS OF THE PARCEL THAT ARE NOT CONTIGUOUS. (BCD REDEVELOPMENT PLAN §3.5 TABLE 6)

[4] ANY ACCESSORY BUILDING ATTACHED TO A PRINCIPAL BUILDING IS PART OF A PRINCIPAL BUILDING AND SHALL ADHERE TO THE YARD REQUIREMENTS FOR THE PRINCIPAL BUILDING. (§53-79.A.(1)(A))

[5] BUILDING HEIGHT SHALL BE MEASURED FROM THE AVERAGE ELEVATION OF THE FIRST FLOOR (MEASURED AT THE CORNERS OF THE OVERALL CLUSTER OF TOWNHOMES) TO THE MAXIMUM HEIGHT OF A PEAKED ROOF OR TO THE TOP OF ROOF DECK WHEN A FLAT ROOF IS PROPOSED. (BCD REDEVELOPMENT PLAN §3.5 TABLE 6)

[6] PORCHES, PATIOS, ROOF OVERHANGS AND/OR DECKS ARE EXCLUDED FROM SETBACK REQUIREMENTS, HOWEVER DECKS AND PATIOS SHALL NOT INTRUDE INTO SETBACK REQUIREMENTS BY MORE THAN 10'. THE MINIMUM FRONT YARD SETBACK SHALL REMAIN UNOBSTRUCTED. (BCD REDEVELOPMENT PLAN §3.5 TABLE 6)

9. USE REQUIREMENTS
   - A. STACKED TOWNHOMES SHALL ONLY BE PERMITTED WHERE INDIVIDUAL LIVING SPACES DO NOT EXCEED TWO VERTICALLY STACKED DWELLING UNITS WITHIN AN ATTACHED STRUCTURE WITH EACH DWELLING UNIT HAVING A SEPARATE ENTRANCE. (BCD REDEVELOPMENT PLAN §3.4.A.2)
   - B. THE OVERALL MIX OF UNITS WITHIN THE COMMUNITY SHALL CONSIST OF 50% TWO-BEDROOM DWELLING UNITS AND 50% THREE-BUILDING DWELLING UNITS. IF DENS ARE PROPOSED WITHIN DWELLING UNITS, THEY SHALL NOT INCLUDE CLOSETS NOR SHALL DENS HAVE A DOOR SEPARATING THE SPACE FROM OTHER LIVING SPACE. DWELLING UNITS, UPON CONVEYANCE, SHALL INCLUDE A DEED RESTRICTION PROHIBITING THE UTILIZATION OF DENS AS BEDROOMS OR SLEEPING QUARTERS. TWO-BEDROOM DWELLING UNITS SHALL HAVE A FLOOR AREA OF AT LEAST 950 SQUARE FEET, AND THREE-BEDROOM DWELLING UNITS SHALL HAVE A FLOOR AREA OF AT LEAST 1,150 SQUARE FEET. THE NUMBER OF MARKET RATE UNITS SHALL NOT EXCEED 196. (BCD REDEVELOPMENT PLAN §3.4.D.c)
   - C. DWELLING UNITS SHALL CONTAIN A COMPLETE KITCHEN, TOILET AND BATHING FACILITIES, AND NOT MORE THAN THREE BEDROOMS. ALL DWELLING UNITS SHALL PROVIDE CONNECTIONS FOR LAUNDRY FACILITIES (WASHERS AND DRYERS) WITHIN THE DWELLING UNIT. (BCD REDEVELOPMENT PLAN §3.4.D.d)

10. PARKING REQUIREMENTS
   - A. ON-STREET PARKING THAT CAN BE CONSIDERED TOWARD THE PARKING REQUIREMENT MUST BE LOCATED ALONG PUBLIC OR PRIVATE ROADS, DRIVES OR CART WAYS THAT ARE CONTIGUOUS TO THE BUILDING THEY WILL SERVE AND WITHIN THE PORTIONS OF THE ROADS, DRIVES AND CART WAYS THAT ARE ALONG THE FRONTAGE OF THE LOT OR PHASE. (BCD REDEVELOPMENT PLAN §3.4.D.b)
   - B. THE OFF-STREET PARKING REQUIREMENT MAY BE REDUCED FOR ANY RECREATIONAL OR WATERFRONT DEPENDENT PORTIONS OF A REDEVELOPMENT INITIATIVE THAT INCORPORATES THE USE OF SHARED PARKING FACILITIES LOCATED WITHIN 1000 FEET OF THE PROPERTY OR STREET PARKING LOCATED IMMEDIATELY ADJACENT TO THE PROPOSED USE. ANY SUCH REDUCTION SHALL RELY ON THE FINDINGS OF A PARKING STUDY, AND SUCH STUDY SHALL DEMONSTRATE THAT THE NUMBER OF PARKING SPACES AVAILABLE FOR THE PROPOSED USES IS SUFFICIENT AND SHALL NOT RESULT IN ANY ADVERSE IMPACTS TO TRAFFIC OR PARKING ON STREETS WITHIN THE SURROUNDING AREA. (BCD REDEVELOPMENT PLAN §3.6.A.2)
   - C. NINETY DEGREE PARKING OFF-STREET PARKING SPACES SHALL BE NINE (9) FEET WIDE AND A MINIMUM OF EIGHTEEN (18) FEET IN LENGTH. (§ 53-79.A.(24)(e)[1])
   - D. LANDSCAPING IN PARKING AND LOADING AREAS SHALL BE SHOWN ON THE SITE PLAN. TREES SHALL BE STAGGERED AND/OR SPACED SO AS NOT TO INTERFERE WITH DRIVER VISION, HAVE BRANCHES NO LOWER THAN SIX (6) FEET AND BE PLACED AT THE RATE OF AT LEAST ONE (1) TREE FOR EVERY TWENTY (20) PARKING SPACES. ALL AREAS BETWEEN THE PARKING AREA AND THE BUILDING SHALL BE LANDSCAPED WITH TREES, SHRUBS AND GROUND COVER. (§ 53-79.A.(24)(h))
   - E. PARKING SPACES LOCATED TO SERVE RESIDENTIAL USES SHALL BE WITHIN ONE HUNDRED FIFTY (150) FEET OF THE ENTRANCE OF THE BUILDING AND WITHIN THREE HUNDRED (300) FEET OF COMMERCIAL/INDUSTRIAL USES. (§ 53-79.A.(24)(I)[3])
   - F. THE MINIMUM REQUIRED NUMBER OF PARKING SPACES TO BE PROVIDED IN CONJUNCTION WITH RESIDENTIAL USES IN ANY GIVEN ZONE SHALL BE ACCORDING TO THE RESIDENTIAL SITE IMPROVEMENT STANDARDS (RSIS), NEW JERSEY ADMINISTRATIVE CODE - TITLE 5, CHAPTER 21. (§ 53-79.A.(24)(i)[1])
   - G. FOR TOWNHOUSES ONE BEDROOM UNITS SHALL REQUIRE 1.8 PARKING SPACES PER DWELLING UNIT, TWO BEDROOM UNITS SHALL REQUIRE 2.3 PARKING SPACES PER DWELLING UNIT, AND THREE BEDROOM UNITS SHALL REQUIRE 2.4 PARKING SPACES PER DWELLING UNIT. (§N.J.A.C. 5:21-4.14(g)4)
   - H. OFF-STREET AND ON-STREET PARKING FOR RESIDENTIAL STACKED TOWNHOME DEVELOPMENTS SHALL BE PROVIDED AS FOLLOWS GIVEN THE NATURE OF THIS TRANSIT-ORIENTED REDEVELOPMENT: TWO-BEDROOM UNIST REQUIRE 2.0 SPACES AND THREE BEDROOM UNITS REQUIRE 2.0 SPACES. (§3.4.D.a)
   - I. EACH UNIT WITHIN A TOWNHOUSE SHALL PROVIDE PARKING WITHIN ONE ENCLOSED GARAGE SPACE AND ONE TANDEM DRIVEWAY SPACE WITH A DEPTH OF AT LEASE 20' FROM CURBLINE TO BUILDING. GUEST PARKING IS TO BE PROVIDED AT A RATIO OF 0.5 SPACES PER RESIDENTIAL UNIT AND MAY BE PROVIDED ON PUBLIC OR PRIVATE ROADS OR IN COMMON PARKING AREAS. ON-STREET PARKING MUST COMPLY DIMENSIONALLY WITH RSIS STANDARDS. EV CHARGING SPACES SHALL BE PROVIDED PURSUANT TO THE EV MODEL ORDINANCE AND SHALL BE PROVIDED EITHER WITHIN PRIVATE GARAGES OR GUEST PARKING SPACES WITH AT LEAST ONE THIRD OF THE REQUIREMENT PROVIDED WITHIN THE GUEST PARKING SPACES. THE REDEVELOPER SHALL BE OBLIGATED TO ENSURE THE MINIMUM NUMBER OF SPACES IS PROVIDED AND SHALL REPORT TO SARA REGARDING THE DISTRIBUTION OF THE EV SPACES. (BCD REDEVELOPMENT PLAN §3.4.D.a)
   - J. PARKING CALCULATION:

(196 TOWNHOUSE UNITS)*(2.0 PARKING SPACE/UNIT)	=392 SPACES REQUIRED*
TOTAL REQUIRED	=392 SPACES REQUIRED*
TOTAL PROPOSED	=490 SPACES PROPOSED (INCLUDES ONE (1) GARAGE SPACE AND ONE (1) DRIVEWAY SPACE PER UNIT PLUS 98 GUEST PARKING SPACES) **(COMPLIES)**

*INCLUDES GUEST PARKING OF 0.5 SPACES PER DWELLING UNIT TO BE PROVIDED ON STREET OR IN COMMON AREAS. (§N.J.A.C. 5:21-4.14(G)4.<b>)

ELECTRIC VEHICLE CHARGING STATION (EVSE) PARKING SPACES ARE NOT SHOWN. EVSE PARKING SPACES ARE REQUIRED FOR 15% OF PROPOSED MULTI-FAMILY PARKING SPACES. EVSE SPACES TO BE PROVIDED WITHIN GARAGES OF TOWNHOUSE UNITS. DESIGN TO BE COORDINATED WITH ARCHITECT.

11. DRIVEWAY REQUIREMENTS
   - A. CONCRETE CURBS SHALL BE INSTALLED ALONG EVERY STREET WITHIN THE DEVELOPMENT AND AT INTERSECTIONS WITH LOCAL ROADS, COUNTY ROADS AND STATE HIGHWAYS. (§ 53-79.A.(8))
   - B. DRIVES SHALL BE LIMITED TO A MAXIMUM OF TWO (2) TO ANY STREET, EXCEPT WHEN THE FRONTAGE OF A PROPERTY ALONG ANY ONE (1) STREET EXCEEDS FIVE HUNDRED (500) FEET, THE NUMBER OF DRIVES TO THAT STREET MAY BE BASED ON ONE (1) DRIVE FOR EACH TWO HUNDRED FIFTY (250) FEET OF PROPERTY FRONTAGE. EACH DRIVE SHALL BE AT LEAST THREE (3) PARKING AISLES FROM ANY OTHER DRIVE ON THE SAME PROPERTY. EACH DRIVE SHALL HANDLE NO MORE THAN ONE (1) LANE OF TRAFFIC IN EACH DIRECTION; BE AT LEAST FIFTY (50) FEET OR ONE-HALF (1/2) THE LOT FRONTAGE, WHICHEVER IS GREATER, FROM THE STREET LINE OF ANY INTERSECTING STREET; AND BE AT LEAST THIRTY-ONE (31) FEET FROM ANY PROPERTY LINE. THE WIDTH OF THE CURB CUT SHALL BE DETERMINED BY THE TYPE OF TRAFFIC TO BE HANDLED AND THE LIMITATION TO THE NUMBER OF LANES OF TRAFFIC. DRIVEWAYS WITH WIDTHS EXCEEDING TWENTY-FOUR (24) FEET SHALL BE REVIEWED BY THE APPROVING AUTHORITY, GIVING CONSIDERATION TO THE WIDTH, CURBING, DIRECTION OF TRAFFIC FLOW, RADII OF CURVES AND TRAFFIC LANE DIVIDER. CURBING SHALL BE EITHER DEPRESSED AT THE DRIVEWAY OR ROUNDED AT THE CORNERS WITH THE ACCESS DRIVE CONNECTED TO THE STREET IN THE SAME MANNER AS ANOTHER STREET. (§ 53-79.A.(24)(a)[1]) **(W - DRIVEWAYS CLOSER THAN 31' TO PROPERTY LINE)**
   - C. WHERE TWO (2) OR MORE DRIVEWAYS CONNECT A SINGLE SITE TO ANY ONE (1) ROAD, A MINIMUM CLEAR DISTANCE OF TWENTY-FIVE (25) FEET MEASURED ALONG THE RIGHT-OF-WAY LINE SHALL SEPARATE THE CLOSEST EDGES OF ANY TWO (2) SUCH DRIVEWAYS. (§ 53-79.A.(24)(a)[5])
   - D. DRIVEWAYS USED FOR TWO-WAY OPERATION WILL INTERSECT THE ROAD AT AN ANGLE TO AS NEAR NINETY DEGREES AS SITE CONDITIONS WILL PERMIT AND IN NO CASE WILL BE LESS THAN SEVENTY-FIVE DEGREES. (§ 53-79.A.(24)(a)[6][a])
   - E. FOR TWO-WAY OPERATION DRIVEWAYS SERVING A MULTIFAMILY RESIDENTIAL USE OF 10 FAMILIES OR MORE, THE WIDTH OF THE DRIVEWAY SHALL BE A MINIMUM OF TWENTY-FOUR (24) FEET AND A MAXIMUM OF THIRTY (30) FEET. (§ 53-79.A.(24)(a)[7])
   - F. ALL OFF-STREET PARKING AREAS CONTAINING TEN (10) OR MORE SPACES AND ALL OFF-STREET LOADING AREAS SHALL HAVE CONCRETE OR BELGIAN BLOCK CURBING AROUND THE PERIMETER OF THE PARKING AND LOADING AREAS AND TO SEPARATE MAJOR INTERIOR DRIVEWAYS FROM THE PARKING AND LOADING SPACES. (§ 53-79.A.(24)(d))

12. BUFFER REQUIREMENTS
   - A. BUFFER AREAS SHALL REQUIRE SITE PLAN APPROVAL AND ARE REQUIRED ALONG ALL LOT LINES AND STREET LINES WHICH SEPARATE A NONRESIDENTIAL USE FROM EITHER AN EXISTING RESIDENTIAL USE OR RESIDENTIAL ZONING DISTRICT. NO STRUCTURE, ACTIVITY, STORAGE OF MATERIALS OR PARKING OF VEHICLES SHALL BE PERMITTED IN A BUFFER AREA. (§ 53-79.A.(5)(a))
   - B. A MINIMUM OF ONE-HALF (1/2) OF THE PERIPHERY THAT REQUIRES A BUFFER SHALL HAVE A BUFFER AT LEAST TEN (10) FEET WIDE WHICH SHALL BE DESIGNED, PLANTED, GRADED, LANDSCAPED AND DEVELOPED TO OBSCURE THE ACTIVITIES OF THE SITE FROM VIEW. IN ADDITION, THE PERIPHERY THAT REQUIRES A BUFFER SHALL CONSIST OF AT LEAST THE FOLLOWING: FENCING OR WALLS IN A LANDSCAPED AREA NOT LESS THAN TEN (10) FEET WIDE; A LANDSCAPED AREA WITH AT LEAST FIVE (5) FEET HIGH GROWTH. (§ 53-79.A.(5)(b))
   - C. PLANT MATERIALS USED IN SCREEN PLANTINGS SHALL BE AT LEAST THREE (3) FEET IN HEIGHT WHEN PLANTED AND BE OF SUCH DENSITY AS WILL OBSCURE, THROUGHOUT THE FULL COURSE OF THE YEAR, THE GLARE OF AUTOMOBILE HEADLIGHTS EMITTED FROM THE PREMISES. (§ 53-79.A.(5)(c)[2])
   - D. THE SCREEN PLANTING SHALL BE SO PLACED THAT AT MATURITY IT WILL NOT BE CLOSER THAN THREE (3) FEET TO ANY STREET OR PROPERTY LINE. (§ 53-79.A.(5)(c)[3])

13. FENCE & WALL REQUIREMENTS
   - A. FENCES AND WALLS RUNNING PARALLEL TO THE FRONT PROPERTY LINE MAY NOT BE ERECTED, ALTERED OR RECONSTRUCTED, EXCEPT THAT FENCES, WALLS AND HEDGES LOCATED PARALLEL TO THE FRONT PROPERTY LINE AND ON OR BEHIND THE FRONT BUILDING LINE MAY BE ERECTED TO A HEIGHT NOT TO EXCEED FOUR (4) FEET ABOVE GROUND LEVEL OR TWO AND ONE HALF FEET WITHIN SIGHT TRIANGLE. (§ 53-79.A.(11)(b))
   - B. ALL FENCES, WALLS AND HEDGES MUST BE ERECTED WITHIN THE PROPERTY LINES, AND NO FENCE, WALL OR HEDGE SHALL BE ERECTED SO AS TO ENCROACH UPON A PUBLIC RIGHT-OF-WAY. (§ 53-79.A.(11)(e))
   - C. FENCES AND RETAINING WALLS SHALL BE PERMITTED IN SIDE AND REAR YARDS. FENCES SHALL BE LIMITED TO A HEIGHT OF 8' AND RETAINING WALLS SHALL BE SUBJECT TO THE REVIEW OF THE CITY ENGINEER. (BCD REDEVELOPMENT PLAN §3.4.D.g)

14. SIDEWALK REQUIREMENTS
   - A. WHERE REQUIRED, SIDEWALKS SHALL BE AT LEAST FOUR (4) FEET WIDE AND LOCATED AS APPROVED BY THE APPROVING AUTHORITY. (§ 53-79.A.(33))

15. THE APPLICANT REQUESTS ANY AND ALL SUBMISSION WAIVERS THAT ARE NOT SPECIFICALLY IDENTIFIED HEREIN. TESTIMONY WILL BE SUPPLIED AT THE PUBLIC HEARING TO SUPPORT SAID SUBMISSION WAIVERS.

16. PRIOR TO STARTING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE TO MAKE SURE THAT ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED. NO CONSTRUCTION OR FABRICATION SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED AND THOROUGHLY REVIEWED ALL PLANS AND OTHER DOCUMENTS BY ALL OF THE PERMITTING AUTHORITIES.

17. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE REQUIREMENTS AND STANDARDS OF THE LOCAL GOVERNING AUTHORITY.

18. THE SOILS REPORT AND RECOMMENDATIONS SET FORTH THEREIN ARE A PART OF THE REQUIRED CONSTRUCTION DOCUMENTS AND IN CASE OF CONFLICT SHALL TAKE PRECEDENCE UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER CONSTRUCTION MANAGER OF ANY DISCREPANCY BETWEEN SOILS REPORT & PLANS.

19. SITE CLEARING SHALL INCLUDE THE LOCATION AND REMOVAL OF ALL UNDERGROUND TANKS, PIPES, VALVES, ETC.

20. THE PROPERTY SURVEY SHALL BE CONSIDERED A PART OF THESE PLANS.

21. ALL DIMENSIONS SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR WORK HAVING TO BE REDONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.

22. SOLID WASTE TO BE DISPOSED OF BY CONTRACTOR IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.

23. ALL EXCAVATED UNSUITABLE MATERIAL MUST BE TRANSPORTED TO AN APPROVED DISPOSAL LOCATION.

24. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING REQUIRED DURING EXCAVATION AND SHALL BE PERFORMED IN ACCORDANCE WITH CURRENT OSHA STANDARDS, AS WELL AS ADDITIONAL PROVISIONS TO ASSURE STABILITY OF CONTIGUOUS STRUCTURES, AS FIELD CONDITIONS DICTATE.

25. ALL CONTRACTORS MUST CARRY STATUTORY WORKERS COMPENSATION, EMPLOYERS LIABILITY INSURANCE AND APPROPRIATE LIMITS OF COMMERCIAL GENERAL LIABILITY INSURANCE (CGL). ALL CONTRACTORS MUST HAVE THEIR CGL POLICIES ENDORSED TO NAME DYNAMIC ENGINEERING CONSULTANTS, P.C. , ITS SUBCONSULTANTS AS ADDITIONAL INSURED AND TO PROVIDE CONTRACTUAL LIABILITY COVERAGE SUFFICIENT TO INSURE THE HOLD HARMLESS AND INDEMNITY OBLIGATIONS ASSUMED BY THE CONTRACTORS. ALL CONTRACTORS MUST FURNISH DYNAMIC ENGINEERING CONSULTANTS, P.C. WITH CERTIFICATES OF INSURANCE AS EVIDENCE OF THE REQUIRED INSURANCE PRIOR TO COMMENCING WORK AND UPON RENEWAL OF EACH POLICY DURING THE ENTIRE PERIOD OF CONSTRUCTION. IN ADDITION, ALL CONTRACTORS WILL, TO THE FULLEST EXTENT PERMITTED BY LAW, INDEMNIFY AND HOLD HARMLESS DYNAMIC ENGINEERING CONSULTANTS, P.C. AND ITS SUBCONSULTANTS FROM AND AGAINST ANY DAMAGES, LIABILITIES OR COSTS, INCLUDING REASONABLE ATTORNEYS' FEES AND DEFENSE COSTS, ARISING OUT OF OR IN ANY WAY CONNECTED WITH THE PROJECT, INCLUDING ALL CLAIMS BY EMPLOYEES OF THE CONTRACTORS.

26. NEITHER THE PROFESSIONAL ACTIVITIES OF DYNAMIC ENGINEERING CONSULTANTS, P.C., NOR THE PRESENCE OF DYNAMIC ENGINEERING CONSULTANTS, P.C. OR ITS EMPLOYEES AND SUBCONSULTANTS AT A CONSTRUCTION/PROJECT SITE, SHALL RELIEVE THE GENERAL CONTRACTOR OF ITS OBLIGATIONS, DUTIES AND RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING AND COORDINATING THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ANY HEALTH OR SAFETY PRECAUTIONS REQUIRED BY ANY REGULATORY AGENCIES. DYNAMIC ENGINEERING CONSULTANTS, P.C. AND ITS PERSONNEL HAVE NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION CONTRACTOR OR ITS EMPLOYEES IN CONNECTION WITH THEIR WORK OR ANY HEALTH OR SAFETY PROGRAMS OR PROCEDURES. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOBSITE SAFETY. DYNAMIC ENGINEERING CONSULTANTS, P.C. SHALL BE INDEMNIFIED BY THE GENERAL CONTRACTOR AND SHALL BE MADE ADDITIONAL INSURED UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE.

27. DYNAMIC ENGINEERING CONSULTANTS, P.C. SHALL REVIEW AND APPROVE OR TAKE OTHER APPROPRIATE ACTION ON THE CONTRACTOR SUBMITTALS, SUCH AS SHOP DRAWINGS, PRODUCT DATA, SAMPLES AND OTHER DATA, WHICH THE CONTRACTOR IS REQUIRED TO SUBMIT, BUT ONLY FOR THE LIMITED PURPOSE OF CHECKING FOR CONFORMANCE WITH THE DESIGN CONCEPT AND THE INFORMATION SHOWN IN THE CONSTRUCTION MEANS OR METHODS, COORDINATION OF THE WORK WITH OTHER TRADES OR CONSTRUCTION SAFETY PRECAUTIONS, ALL OF WHICH ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. DYNAMIC ENGINEERING'S REVIEW SHALL BE CONDUCTED WITH REASONABLE PROMPTNESS WHILE ALLOWING SUFFICIENT TIME TO PERMIT ADEQUATE REVIEW. REVIEW OF A SPECIFIC ITEM SHALL NOT INDICATE THAT DYNAMIC ENGINEERING CONSULTANTS, P.C. HAS REVIEWED THE ENTIRE ASSEMBLY OF WHICH THE ITEM IS A COMPONENT. DYNAMIC ENGINEERING CONSULTANTS, P.C. SHALL NOT BE RESPONSIBLE FOR ANY DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS NOT BROUGHT TO THE ATTENTION OF DYNAMIC ENGINEERING CONSULTANTS, P.C. IN WRITING BY THE CONTRACTOR. DYNAMIC ENGINEERING CONSULTANTS, P.C. SHALL NOT BE REQUIRED TO REVIEW PARTIAL SUBMISSIONS OR THOSE FOR WHICH SUBMISSIONS OF CORRELATED ITEMS HAVE NOT BEEN RECEIVED.

28. IN AN EFFORT TO RESOLVE ANY CONFLICTS THAT ARISE DURING THE DESIGN AND CONSTRUCTION OF THE PROJECT OR FOLLOWING THE COMPLETION OF THE PROJECT, DYNAMIC ENGINEERING CONSULTANTS, P.C. AND THE CONTRACTOR MUST AGREE THAT ALL DISPUTES BETWEEN THEM ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE PROJECT SHALL BE SUBMITTED TO NONBINDING MEDIATION UNLESS THE PARTIES MUTUALLY AGREE OTHERWISE.

29. THE CONTRACTOR MUST INCLUDE A MEDIATION PROVISION IN ALL AGREEMENTS WITH INDEPENDENT SUBCONTRACTORS AND CONSULTANTS RETAINED FOR THE PROJECT AND TO REQUIRE ALL INDEPENDENT CONTRACTORS AND CONSULTANTS ALSO TO INCLUDE A SIMILAR MEDIATION PROVISION IN ALL AGREEMENTS WITH THEIR SUBCONTRACTORS, SUBCONSULTANTS, SUPPLIERS AND FABRICATORS, THEREBY PROVIDING FOR MEDIATION AS THE PRIMARY METHOD FOR DISPUTE RESOLUTION BETWEEN THE PARTIES TO ALL THOSE AGREEMENTS.

30. IF THE CONTRACTOR DEVIATES FROM THE PLANS AND SPECIFICATIONS, INCLUDING THE NOTES CONTAINED THEREON, WITHOUT FIRST OBTAINING PRIOR WRITTEN AUTHORIZATION FOR SUCH DEVIATIONS FROM THE OWNER AND ENGINEER, IT SHALL BE RESPONSIBLE FOR THE PAYMENT OF ALL COSTS TO CORRECT ANY WORK DONE, ALL FINES OR PENALTIES ASSESSED WITH RESPECT THERETO AND ALL COMPENSATORY OR PUNITIVE DAMAGES RESULTING THEREFROM AND IT SHALL INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ALL SUCH COSTS TO CONNECT ANY SUCH WORK AND FROM ALL SUCH FINES AND PENALTIES, COMPENSATION AND PUNITIVE DAMAGES AND COSTS OF ANY NATURE RESULTING THEREFROM.

31. ALL TRAFFIC SIGNS AND STRIPING SHALL FOLLOW THE REQUIREMENTS SPECIFIED IN THE MANUAL ON "UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION.

32. THE BUILDING SETBACK DIMENSIONS ILLUSTRATED AND LISTED ON THE SITE PLAN DRAWINGS ARE MEASURED FROM THE OUTSIDE SURFACE OF BUILDING WALLS. THESE SETBACK DIMENSIONS DO NOT ACCOUNT FOR ROOF OVERHANGS, ORNAMENTAL ELEMENTS, SIGNAGE OR OTHER EXTERIOR EXTENSIONS UNLESS SPECIFICALLY NOTED.

33. CONTRACTOR ACKNOWLEDGES HE HAS READ AND UNDERSTOOD THE DESIGN PHASE SOIL PERMEABILITY AND GROUNDWATER TEST RESULTS IN THE STORMWATER MANAGEMENT REPORT AND THAT THE CONTRACTORS RESPONSIBILITIES INCLUDE NECESSARY PROVISIONS TO ACHIEVE THE DESIGN PERMEABILITY IN THE FIELD.

34. CONTRACTOR TO BE ADVISED THAT THE ENGINEER WAS NOT PROVIDED WITH FINAL FLOOR PLAN DRAWINGS FOR THE BUILDING AT THE TIME OF SITE PLAN DESIGN. AS A RESULT, ENTRANCE DOOR LOCATIONS AS DEPICTED HEREON MAY NOT BE FINAL AND MUST BE CONFIRMED WITH THE ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION. THE HANDICAP ACCESSIBLE PARKING SPACES AND THE ASSOCIATED RAMPS AND ACCESSIBLE ROUTE MUST COMPLY WITH NJAC 5:23-7 AND THE HANDICAP PARKING SPACES MUST BE LOCATED AS THE NEAREST SPACES TO THE ENTRANCE. CONTRACTOR TO NOTIFY OWNER AND ENGINEER IMMEDIATELY OF ANY DISCREPANCY PRIOR TO CONSTRUCTION.

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TITLE:
OVERALL SITE PLAN

PROJECT: **MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC**
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No: 3184-99-001
DATE: 10/13/2025
DRAWN BY: GMZ
SCALE: (H) 1"=50' (V)_
DESIGNED BY: MDC
CHECKED BY: TJM/DMH
CHECKED BY: _
SHEET No: 7 OF 30
Rev. # 0

THOM DRAFT LEY JR
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 52179

PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 56564

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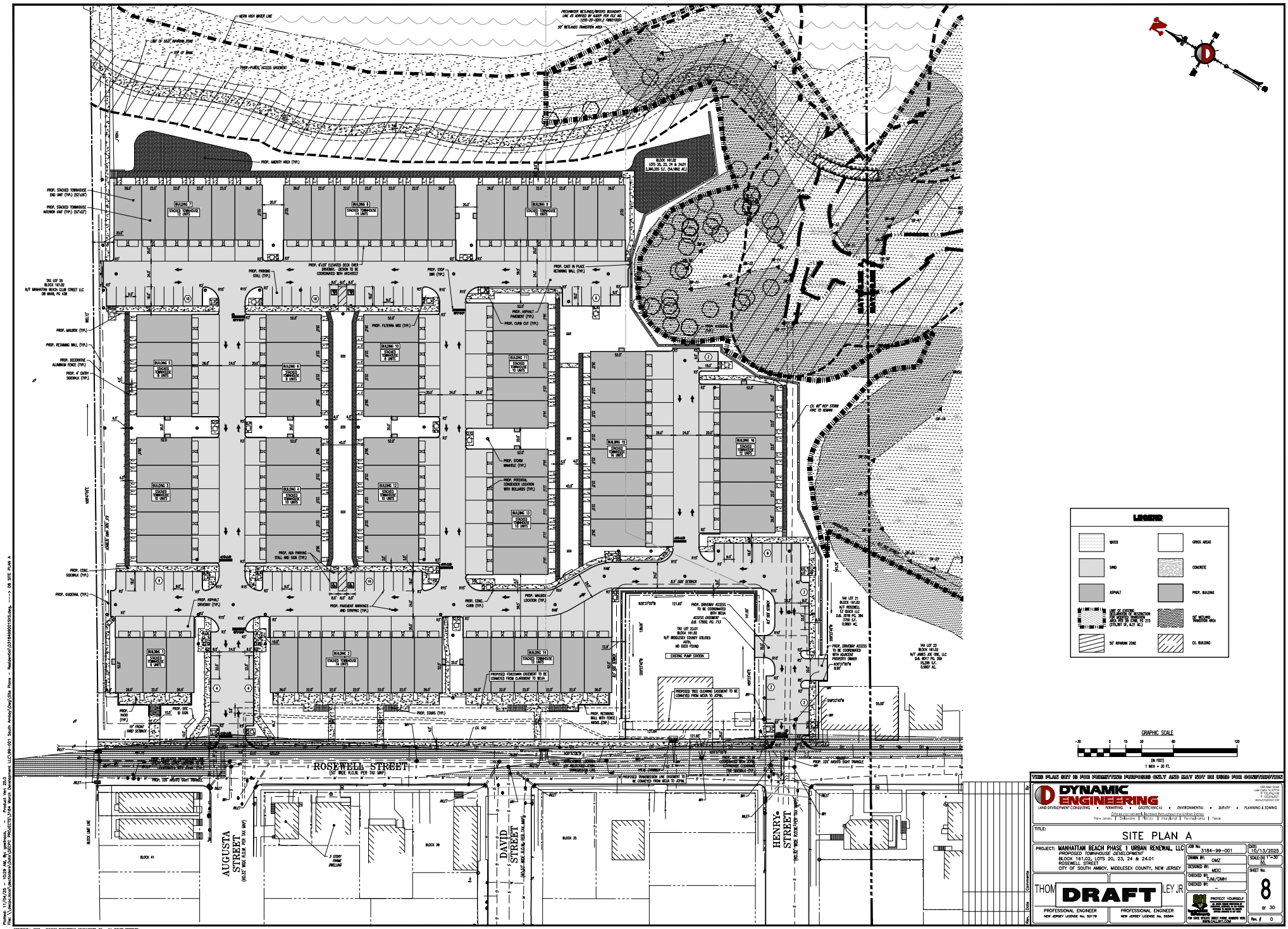

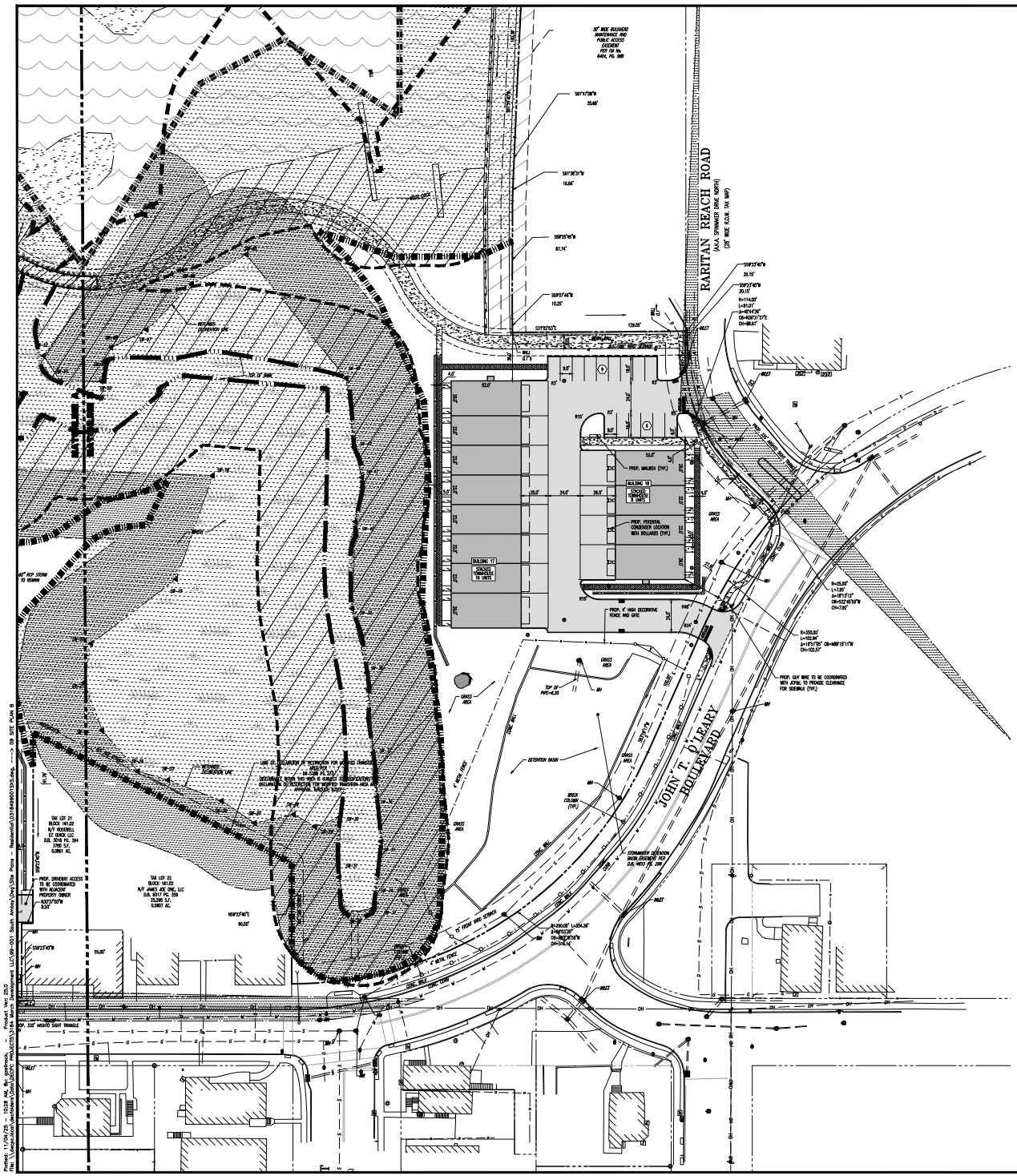

LEGEND

▨	WATER	☐	GRASS AREAS
▨	SAND	▨	CONCRETE
▨	ASPHALT	▨	PROP. BUILDING
▨	LIMIT OF EXISTING DECLARATION OF RESTRICTION FOR MODIFIED TRANSITION AREA PER DB 5768, PG 273 (270,381 SF, 6.21 AC.)	▨	50' WETLAND TRANSITION AREA
▨	50' RIPARIAN ZONE	▨	EX. BUILDING

GRAPHIC SCALE

−30 0 15 30 60 120

(IN FEET)
1 INCH = 30 FT.

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Rev.	Date	Comments	By

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TITLE:
SITE PLAN B

PROJECT: **MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC**
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

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SHEET No: 9 OF 30
Rev. # 0

THOM DRAFT LEY JR

PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 52179

PROFESSIONAL ENGINEER
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Plotted: 11/04/25 – 10:28 AM, By: gzelinack, – Product Ver: 25.0
File: \\decpc.local\decfolders\Data\DECPC PROJECTS\3184 March Development LLC\99-001 South Amboy\Dwg\Site Plans – Residential\D318499001SXS.dwg, ---> 09 SITE PLAN B

GRADING NOTES

1. SITE GRADING SHALL BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS AND THE RECOMMENDATIONS SET FORTH IN THE SOILS REPORT REFERENCED IN THIS PLAN SET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND REPLACING ALL SOFT, YIELDING OR UNSUITABLE MATERIALS AND REPLACING WITH SUITABLE MATERIALS AS SPECIFIED IN THE SOILS REPORT. ALL EXCAVATED OR FILLED AREAS SHALL BE COMPACTED TO 95% OF MODIFIED PROCTOR MAXIMUM DENSITY PER A.S.T.M. TEST D-1557. MOISTURE CONTENT AT TIME OF PLACEMENT SHALL NOT EXCEED 2% ABOVE NOR 3% BELOW OPTIMUM. CONTRACTOR SHALL SUBMIT A COMPACTION REPORT PREPARED BY A QUALIFIED SOILS ENGINEER, REGISTERED WITHIN THE STATE WHERE THE WORK IS PERFORMED, VERIFYING THAT ALL FILLED AREAS AND SUBGRADE AREAS WITHIN THE BUILDING PAD AREA AND AREAS TO BE PAVED HAVE BEEN COMPACTED IN ACCORDANCE WITH THESE PLANS AND SPECS AND THE RECOMMENDATIONS SET FORTH IN THE SOILS REPORT.
2. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF EXISTING TOPOGRAPHIC INFORMATION AND UTILITY INVERT ELEVATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION. CONTRACTOR TO ENSURE 0.75% MIN. SLOPE AGAINST ALL ISLAND GUTTERS/CURBS AND 1.0% ON ALL CONCRETE SURFACES, AND 1.5% MIN. ON ASPHALT UNLESS OTHERWISE NOTED. ANY DISCREPANCIES THAT MAY AFFECT THE PUBLIC SAFETY OR PROJECT COST, MUST BE IDENTIFIED TO THE ENGINEER IN WRITING IMMEDIATELY. PROCEEDING WITH CONSTRUCTION WITH DESIGN DISCREPANCIES IS DONE SO AT THE CONTRACTOR'S OWN RISK.
3. PROPOSED TOP OF CURB ELEVATIONS ARE GENERALLY 6" ABOVE EXISTING LOCAL ASPHALT GRADE UNLESS OTHERWISE NOTED. FIELD ADJUST TO CREATE A MIN. OF 0.75% GUTTER GRADE ALONG CURB FACE RECEIVING SURFACE RUNOFF. ENGINEER TO APPROVE FINAL CURBING CUT SHEETS PRIOR TO INSTALLATION.
4. SUBBASE MATERIAL FOR SIDEWALKS, CURB, OR ASPHALT SHALL BE FREE OF ORGANICS AND OTHER UNSUITABLE MATERIALS. SHOULD SUBBASE BE DEEMED UNSUITABLE, SUBBASE IS TO BE REMOVED AND FILLED WITH APPROVED FILL MATERIAL COMPACTED TO 95% OPTIMUM DENSITY (AS DETERMINED BY MODIFIED PROCTOR METHOD).
5. REFER TO SITE PLAN FOR ADDITIONAL NOTES.
6. IN CASE OF DISCREPANCIES BETWEEN PLANS, THE SITE PLAN WILL SUPERCEDE IN ALL CASES. CONTRACTOR MUST NOTIFY ENGINEER OF RECORD OF ANY CONFLICT IMMEDIATELY.
7. MAXIMUM CROSS SLOPE OF 1:48 (2.08%) ON ALL SIDEWALKS.
8. CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE OWNER'S GEOTECHNICAL ENGINEER PRIOR TO ONSET OF CONSTRUCTION TO SUBMIT AND CONFIRM THE CONTRACTOR'S PROPOSED MEANS AND MATERIALS AND TO SCHEDULE INSPECTIONS FOR BOTTOM OF BASIN, REMOVAL OF UNSUITABLE SOIL, FILL PLACEMENT, AND FINAL BASIN PERMEABILITY TESTING.
9. THE CONTRACTOR IS RESPONSIBLE FOR AS-BUILT PLANS AND GRADE CONTROL UNLESS DEFINED OTHERWISE ELSEWHERE IN THE CONTRACT DOCUMENTS.

ADA NOTES

1. ALL SLOPES INDICATED ARE ACTUAL. CONTRACTOR TO CONSTRUCT IMPROVEMENTS IN COMPLIANCE WITH THE LATEST ADA GUIDELINES AND BUILDING CODE REQUIREMENTS. AT THE TIME OF PLAN DESIGN, THESE REQUIREMENTS INCLUDE BUT ARE NOT LIMITED TO:

A. SIDEWALKS/ ACCESSIBLE ROUTES:
- WIDTH: 36" MIN. EXCLUSIVE OF THE WIDTH OF ANY CURB
- PASSING SPACE: MIN. 60"x 60" AT INTERVALS OF 200' MAX IF ACCESSIBLE ROUTE WIDTH IS LESS THAN 60"
- RUNNING SLOPE: 1:20 (5%) MAX.
- CROSS SLOPE: 1:48 (2.08%) MAX., 1.0% MIN.
- INTERSECTION SLOPE: 1:48 (2.08%) MAX. IN ALL DIRECTIONS
- CHANGE IN LEVELS: 1/4" MAX. HEIGHT OR 1/2" MAX. HEIGHT WITH BEVELED EDGE BEVELED EDGE SLOPE OF 1:2 (50%) MAX.
- GAPS: 1/2" MAX. WIDTH ELONGATED OPENINGS SHALL BE PLACED SO LONG DIMENSION IS PERPENDICULAR TO PATH OF TRAVEL

B. CURB RAMPS:
- SLOPE 1:12 (8.3%) MAX.
- SIDE FLARE SLOPE: 1:10 (10%) MAX OR 1:12 (8.3%) MAX IN ALTERATIONS WHERE TOP LANDING IS UNAVAILABLE (WHERE PEDS CROSS RAMP)
- BOTTOM LANDING: 48" MIN. LENGTH; WIDTH TO MATCH CURB RAMP; 1:48 MAX. (2.08%) IN ALL DIRECTIONS
- TOP LANDING: 36" MIN. LENGTH; WIDTH TO MATCH CURB RAMP; 1:48 MAX. (2.08%) CROSS SLOPE AND 1:20 (5%) RUNNING SLOPE WHEN ONLY CONNECTING ACCESSIBLE ROUTE RUNS PARALLEL TO THE RAMP RUN.
- COUNTER SLOPE: 1:20 (5%) MAX.

C. ACCESSIBLE PARKING STALLS:
- SPACE AND ACCESS AISLE SLOPE: 1:48 MAX. (2.08%) IN ALL DIRECTIONS ACROSS ACCESSIBLE PARKING STALLS AND STRIPED ACCESS AISLES

D. CROSSWALKS
- RUNNING SLOPE: 1:20 (5%) MAX.
- CROSS SLOPE: 1:48 (2.08%) MAX.
- CHANGE IN LEVELS: 1/4" MAX. HEIGHT OR 1/2" MAX. HEIGHT WITH BEVELED EDGE. BEVELED EDGE SLOPE OF 1:2 (50%) MAX.
- GAPS: 1/2" MAX. WIDTH ELONGATED OPENINGS SHALL BE PLACED SO LONG DIMENSION IS PERPENDICULAR TO PATH OF TRAVEL

E. RAMPS
- SLOPE: 1:12 (8.3%) MAX.
- MAX. RISE: 30"
- MIN. CLEAR WIDTH: 36"
- MIN. LANDING CLEAR LENGTH: 60"
- MAX. CROSS SLOPE: 1:48 (2.08%)

F. CONTRACTOR SHALL CLARIFY ANY QUESTIONS CONCERNING CONSTRUCTION AND/OR GRADING IN ADA AREAS WITH THE ENGINEER PRIOR TO THE START OF CONSTRUCTION.

GRAPHIC SCALE

(IN FEET)
1 INCH = 50 FT.

GRADING/UTILITY GRAPHIC LEGEND

PROPERTY LINE (PARCEL IN QUESTION)
OFF-SITE PROPERTY LINES

- EXIST. GUY WIRE
- EXIST. LIGHT POLE
- EXIST. BUILDING LIGHT
- EXIST. SHOE BOX LIGHT
- EXIST. COBRA LIGHT POLE
- EXIST. TRAFFIC SIGNAL POLE
- EXIST. MANHOLE
- EXIST. "A" INLET
- EXIST. "B" INLET
- EXIST. "E" INLET
- EXIST. YARD INLET
- EXIST. FLARED END SECTION
- EXIST. HEADWALL
- EXIST. UTILITY POLE

- MW EXIST. MONITORING WELL
- TP-# APPROX. TEST PIT LOCATION
- EXIST. FIRE HYDRANT
- WV EXIST. WATER VALVE
- GV EXIST. GAS VALVE
- GM EXIST. GAS METER
- EM EXIST. ELECTRIC METER
- Elbox EXIST. ELECTRIC BOX
- C/O EXIST. CLEAN OUT
- W EXIST. WELL
- WSO EXIST. WATER SHUT OFF VALVE
- TEL EXIST. TELEPHONE BOX
- EXIST. CABLE TV BOX
- PROP. HEADWALL

- W PROP. WATER VALVE
- GV PROP. GAS VALVE
- PROP. STORM CLEANOUT
- PROP. SANITARY CLEANOUT
- PROP. AREA LIGHT
- PROP. OUTLET CONTROL STRUCTURE
- PROP. DRAINAGE MANHOLE
- PROP. SANITARY SEWER MANHOLE
- PROP. 'A' INLET
- PROP. 'B' INLET
- PROP. 'E' INLET
- PROP. YARD INLET
- PROP. FLARED END SECTION

- C EXIST. CABLE LINE
- C PROP. CABLE LINE
- E EXIST. ELECTRIC LINE
- E PROP. ELECTRIC LINE
- FO EXIST. FIBER OPTIC LINE
- FO PROP. FIBER OPTIC LINE
- G EXIST. GAS LINE
- G PROP. GAS LINE
- OH EXIST. OVERHEAD WIRES
- OH PROP. OVERHEAD WIRES
- T EXIST. TELEPHONE LINE
- T PROP. TELEPHONE LINE
- W EXIST. WATER LINE
- W PROP. WATER LINE
- FS EXIST. FIRE SERVICE
- FS PROP. FIRE SERVICE

- UGET EXIST. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
- UGET PROP. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
- S EXIST. SANITARY SEWER LINE
- OR
- S PROP. SANITARY SEWER LINE
- OR
- FM EXIST. FORCE MAIN
- FM PROP. FORCE MAIN
- EXIST. STORM DRAIN LINE
- PROP. STORM DRAIN LINE
- (A) (B) (C) (D) UNDERGROUND UTILITY QUALITY LEVEL
- 11 EXIST. MINOR CONTOUR & ELEVATION
- 10 EXIST. MAJOR CONTOUR & ELEVATION
- XX PROP. FINISH GRADE CONTOUR & ELEVATION
- PROP. DIRECTION OF DRAINAGE FLOW ARROW

- × 8.9 EXIST. SPOT ELEVATIONS
- × G: 8.90 EXIST. GUTTER ELEV.
- × TC: 8.90 EXIST. TOP OF CURB ELEV.
- × FF: 8.90 EXIST. FINISH FLOOR ELEV.
- × GF: 8.90 EXIST. GARAGE FLOOR ELEV.
- G: 000.00 PROP. GRADE SPOT ELEV.
- TC: 000.00 G: 000.00 PROP. TOP OF CURB & FINISHED GRADE ELEV.
- FF: 000.00 PROP. FINISHED FLOOR ELEV.
- TW: 000.00 GL: 000.00 PROP. TOP OF WALL & FINISHED GRADE @ LOW SIDE OF WALL (ACTUAL BOTTOM OF WALL FOOTING TO BE ESTABLISHED BY WALL DESIGNER)
- TC: 000.00 GH: 000.00 GL: 000.00 PROP. TOP OF EXTENDED CURB, (GH) FINISHED GRADE @ HIGH SIDE OF EXTENDED CURB & (GL) FINISHED GRADE @ LOW SIDE OF EXTENDED CURB

TIDAL DATUMS AND BENCHMARK INFORMATION PER NEW JERSEY TIDAL BENCHMARK NETWORK STATION 853-1232 SOUTH AMBOY NJ:
- **MEAN HIGHER HIGH WATER (MHHW): 2.49 (NAVD88)**
- **MEAN HIGH WATER (MHW): 2.15 (NAVD88)**
- **MEAN TIDE LEVEL (MTL): -0.40 (NAVD88)**
- **MEAN LOW WATER (MLW): -2.96 (NAVD88)**
- **MEAN LOWER LOW WATER (MLLW): -3.18 (NAVD88)**

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OVERALL GRADING PLAN

MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No:	3184-99-001
DATE:	10/13/2025
DRAWN BY:	GMZ
SCALE:	(H) 1"=50' (V)_
DESIGNED BY:	MDC
CHECKED BY:	TJM/DMH
CHECKED BY:	_
SHEET No:	10 OF 30
Rev. #	0

THOM LEY JR

DRAFT

PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 52179

PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 56564

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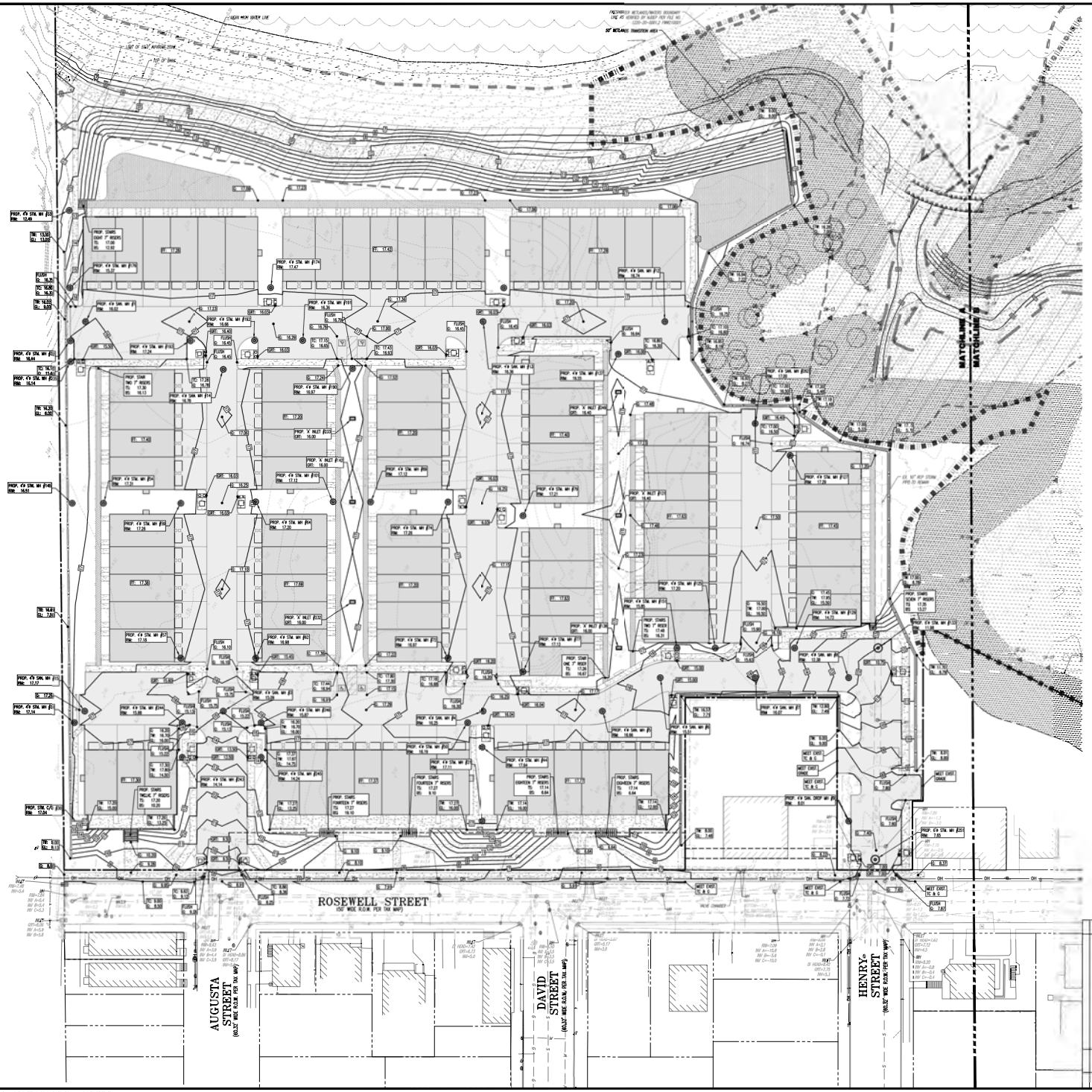

TIDAL DATUMS AND BENCHMARK INFORMATION PER NEW JERSEY
TIDAL BENCHMARK NETWORK STATION 853-1232 SOUTH AMBOY N.J.

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GRADING/UTILITY GRAPHIC LEGEND

PROPERTY LINE (PARCEL IN QUESTION)
OFF-SITE PROPERTY LINES

EXIST. CABLE LINE
EXIST. ELECTRIC LINE
EXIST. FIBER OPTIC LINE
EXIST. GAS LINE
EXIST. OVERHEAD WIRES
EXIST. TELEPHONE LINE
EXIST. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
EXIST. WATER LINE
EXIST. FIRE SERVICE
EXIST. SANITARY SEWER LINE
EXIST. FORCE MAIN
EXIST. STORM DRAIN LINE
EXIST. MINOR CONTOUR & ELEVATION
EXIST. MAJOR CONTOUR & ELEVATION

PROP. CABLE LINE
PROP. ELECTRIC LINE
PROP. FIBER OPTIC LINE
PROP. GAS LINE
PROP. OVERHEAD WIRES
PROP. TELEPHONE LINE
PROP. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
PROP. WATER LINE
PROP. FIRE SERVICE
PROP. SANITARY SEWER LINE
PROP. FORCE MAIN
PROP. STORM DRAIN LINE
UNDERGROUND UTILITY QUALITY LEVEL
PROP. FINISH GRADE CONTOUR & ELEVATION

EXIST. MONITORING WELL
EXIST. SPOT ELEVATIONS
EXIST. GUTTER ELEV.
EXIST. TOP OF CURB ELEV.
EXIST. FINISH FLOOR ELEV.
EXIST. GARAGE FLOOR ELEV.
EXIST. FIRE HYDRANT
EXIST. WATER VALVE
EXIST. GAS VALVE
EXIST. GAS METER
EXIST. ELECTRIC METER
EXIST. ELECTRIC BOX
EXIST. CLEAN OUT
EXIST. WELL
EXIST. WATER SHUT OFF VALVE
EXIST. TELEPHONE BOX
EXIST. CABLE TV BOX
EXIST. UTILITY POLE
EXIST. GUY WIRE
EXIST. LIGHT POLE
EXIST. BUILDING LIGHT
EXIST. SHOE BOX LIGHT
EXIST. COBRA LIGHT POLE
EXIST. TRAFFIC SIGNAL POLE
EXIST. MANHOLE
EXIST. "A" INLET
EXIST. "B" INLET
EXIST. "C" INLET
EXIST. YARD INLET
EXIST. FLARED END SECTION
EXIST. HEADWALL

APPROX. TEST PIT LOCATION
PROP. GRADE SPOT ELEV.
PROP. TOP OF CURB & FINISHED GRADE ELEV.
PROP. FINISHED FLOOR ELEV.
PROP. TOP OF WALL & FINISHED GRADE & LOW SIDE OF WALL (INITIAL BOTTOM OF WALL FOOTING TO BE ESTABLISHED BY WALL DESIGNER)
PROP. TOP OF DEPRESSED CURB, CBV FINISHED GRADE & HIGH SIDE OF DEPRESSED CURB & (G) FINISH GRADE @ THE SIDE OF DEPRESSED CURB
PROP. DIRECTION OF DRAINAGE FLOW ARROW
PROP. WATER VALVE
PROP. GAS VALVE
PROP. STORM CLEANOUT
PROP. SANITARY CLEANOUT
PROP. AREA LIGHT
PROP. OUTLET CONTROL STRUCTURE
PROP. DRAINAGE MANHOLE
PROP. SANITARY SEWER MANHOLE
PROP. "A" INLET
PROP. "B" INLET
PROP. "C" INLET
PROP. YARD INLET
PROP. FLARED END SECTION
PROP. HEADWALL

GRAPHIC SCALE
-30 0 15 30 60 120
(IN FEET)
1 INCH = 30 FT.

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TITLE: GRADING PLAN A

PROJECT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No.: 5184-99-001
DATE: 10/13/2025
DRAWN BY: GMZ
SCALE: AS SHOWN
DESIGNED BY: MDC
CHECKED BY: TJM/DMH
CHECKED BY: –
SHEET No.: 11 OF 30
Rev. # 0

PROFESSIONAL ENGINEER: THOMAS J. MANLEY JR
NEW JERSEY LICENSE No. 56564

DRAFT

PROFESSIONAL ENGINEER: DAVID M. HOLLEY
NEW JERSEY LICENSE No. 52179

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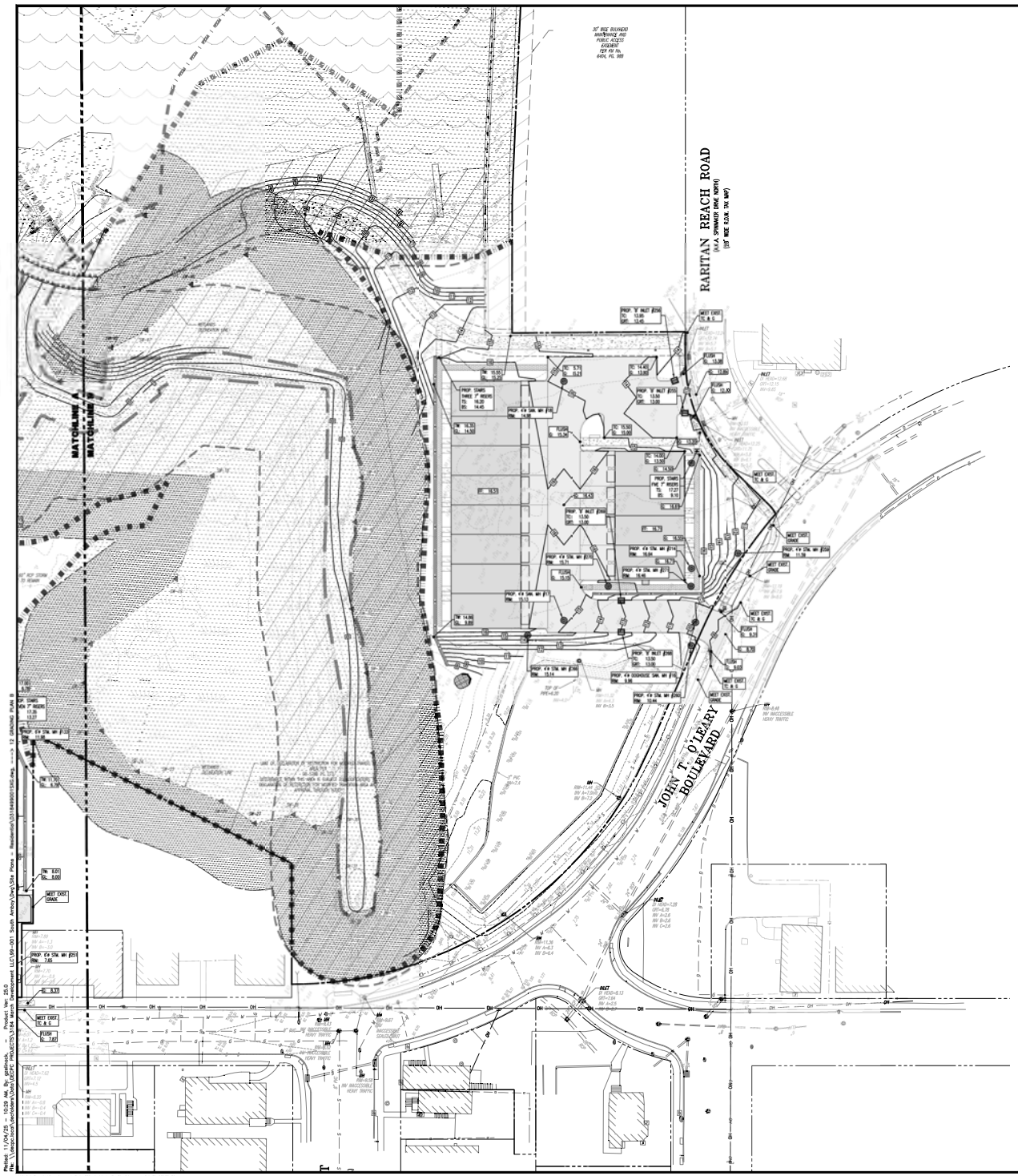

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TIDAL BENCHMARK NETWORK STATION 853-1232 SOUTH AMBOY N.J.

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GRADING/UTILITY GRAPHIC LEGEND

PROPERTY LINE (PARCEL IN QUESTION)
OFF-SITE PROPERTY LINES

EXIST. CABLE LINE
EXIST. ELECTRIC LINE
EXIST. FIBER OPTIC LINE
EXIST. GAS LINE
EXIST. OVERHEAD WIRES
EXIST. TELEPHONE LINE
EXIST. UNDERGROUND ELEC./TELE. SERVICE
EXIST. WATER LINE
EXIST. FIRE SERVICE
EXIST. SANITARY SEWER LINE
EXIST. FORCE MAIN
EXIST. STORM DRAIN LINE
EXIST. MINOR CONTOUR & ELEVATION
EXIST. MAJOR CONTOUR & ELEVATION
EXIST. MONITORING WELL
EXIST. SPOT ELEVATIONS
EXIST. GUTTER ELEV.
EXIST. TOP OF CURB ELEV.
EXIST. FINISH FLOOR ELEV.
EXIST. GARAGE FLOOR ELEV.
EXIST. FIRE HYDRANT
EXIST. WATER VALVE
EXIST. GAS VALVE
EXIST. GAS METER
EXIST. ELECTRIC METER
EXIST. ELECTRIC BOX
EXIST. CLEAN OUT
EXIST. WELL
EXIST. WATER SHUT OFF VALVE
EXIST. TELEPHONE BOX
EXIST. CABLE TV BOX
EXIST. UTILITY POLE
EXIST. GUY WIRE
EXIST. LIGHT POLE
EXIST. BUILDING LIGHT
EXIST. SHOE BOX LIGHT
EXIST. COBRA LIGHT POLE
EXIST. TRAFFIC SIGNAL POLE
EXIST. MANHOLE
EXIST. "A" INLET
EXIST. "B" INLET
EXIST. "C" INLET
EXIST. YARD INLET
EXIST. FLARED END SECTION
EXIST. HEADWALL

PROP. CABLE LINE
PROP. ELECTRIC LINE
PROP. FIBER OPTIC LINE
PROP. GAS LINE
PROP. OVERHEAD WIRES
PROP. TELEPHONE LINE
PROP. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
PROP. WATER LINE
PROP. FIRE SERVICE
PROP. SANITARY SEWER LINE
PROP. FORCE MAIN
PROP. STORM DRAIN LINE
UNDERGROUND UTILITY QUALITY LEVEL
PROP. FINISH GRADE CONTOUR & ELEVATION
APPROX. TEST PIT LOCATION
PROP. GRADE SPOT ELEV.
PROP. TOP OF CURB & FINISHED GRADE ELEV.
PROP. FINISHED FLOOR ELEV.
PROP. TOP OF WALL & FINISHED GRADE & LOW SIDE OF RAIL (FUTURE BOTTOM OF RAIL FOOTING TO BE ESTABLISHED BY WALL DESIGNER)
PROP. TOP OF EXPOSED CURB, EW FINISHED GRADE & TOP OF FOOTING ELEV. OR FINISHED GRADE & TOP OF FOOTING ELEV.
PROP. DIRECTION OF DRAINAGE FLOW ARROW
PROP. WATER VALVE
PROP. GAS VALVE
PROP. STORM CLEANOUT
PROP. SANITARY CLEANOUT
PROP. AREA LIGHT
PROP. OUTLET CONTROL STRUCTURE
PROP. DRAINAGE MANHOLE
PROP. SANITARY SEWER MANHOLE
PROP. "A" INLET
PROP. "B" INLET
PROP. "C" INLET
PROP. YARD INLET
PROP. FLARED END SECTION
PROP. HEADWALL

GRAPHIC SCALE
-30 0 15 30 60 120
(IN FEET)
1 INCH = 30 FT.

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TITLE: GRADING PLAN B

PROJECT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

THOMAS J. MCCARTHY, JR. — PROFESSIONAL ENGINEER — NEW JERSEY LICENSE No. 56564
THOMAS J. MCCARTHY, JR. — PROFESSIONAL ENGINEER — NEW JERSEY LICENSE No. 52179

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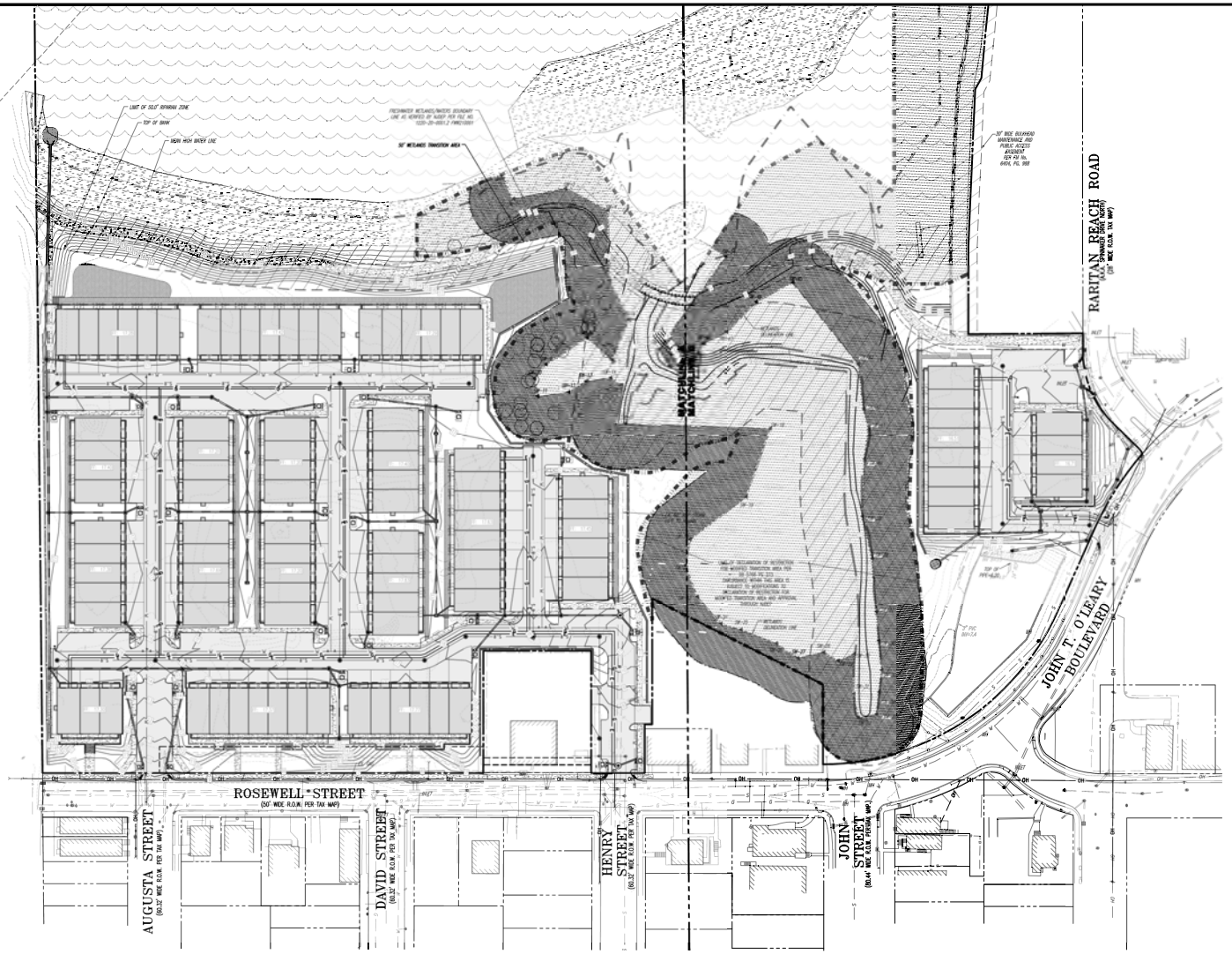
JOB No.: 3184-99-001
DRAWN BY: GMZ
DESIGNED BY: MDC
CHECKED BY: TJM/DMH
CHECKED BY: –
DATE: 10/13/2025
SCALE: AS SHOWN 1" = 30'
SHEET No.: 12 of 30
Rev. # 0



DRAINAGE NOTES

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY UTILITY "ONE-CALL" NUMBER 72 HOURS PRIOR TO ANY EXCAVATION ON THIS SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER & SEWER DEPARTMENTS TO MARK-OUT THEIR UTILITIES.
2. ROOF LEADER COLLECTION PIPING ARE CONCEPTUAL IN NATURE AND ARE NOT FOR CONSTRUCTION. ACTUAL ROOF LEADER COLLECTION PIPING IS TO BE COORDINATED W/ ARCHITECTURAL PLANS FOR EACH INDIVIDUAL BUILDING. ALL ROOF LEADER COLLECTION PIPING SHALL BE SCHEDULE 40 PVC UNLESS OTHERWISE DESIGNATED.
3. MANUFACTURED REINFORCED CONCRETE STORM PIPE TO CONFORM TO ASTM C-76, CLASS III, UNLESS OTHERWISE DESIGNATED. MANUFACTURED REINFORCED CONCRETE ELLIPTICAL STORM PIPE TO CONFORM TO ASTM C-507, CLASS HE-III, UNLESS OTHERWISE DESIGNATED. REINFORCED CONCRETE STORMWATER PIPE TO BE INSTALLED IN ACCORDANCE WITH AMERICAN CONCRETE PIPE ASSOCIATION INSTALLATION GUIDELINES AND BEDDING OR PREFORMED FLEXIBLE JOINT SEALANTS IN ACCORDANCE WITH ASTM C 990 TO BE UTILIZED TO PROVIDE A SILT-TIGHT JOINT. WHERE SPECIFICALLY INDICATED, REINFORCED CONCRETE STORM PIPE JOINTS SHALL BE WATERTIGHT AND CONFORM TO ASTM C-443.
4. HDPE DRAINAGE PIPE SHALL HAVE A SMOOTH WALL INTERIOR WITH ANNULAR EXTERIOR CORRUGATIONS AND CONFORM TO ASTM F2306, SOLID PIPE SHALL HAVE GASKETED WATER-TIGHT JOINTS MEETING THE REQUIREMENTS OF ASTM F3190 AND ASTM D3212. PERFORATED PIPE SHALL HAVE GASKETED SILT-TIGHT JOINTS MEETING THE REQUIREMENTS OF ASTM F2306 AND ASTM F477. HDPE PIPE SHALL BE FROM A MANUFACTURER WHO IS AN EASTERN STATES CONSORTIUM (ESC) QUALIFIED MANUFACTURER OF HDPE PIPE AND INSTALLED IN ACCORDANCE WITH PIPE MANUFACTURE RECOMMENDATIONS.
5. HP DRAINAGE PIPE SHALL HAVE A SMOOTH WALL INTERIOR WITH ANNULAR EXTERIOR CORRUGATIONS AND CONFORM TO ASTM F2736 (12"-30" PIPE) AND ASTM F2881 (36"-60" PIPE). PIPE SHALL HAVE GASKETED WATER-TIGHT JOINTS MEETING THE REQUIREMENTS OF ASTM D3212 AND ASTM F477. FIELD WATERTIGHTNESS PERFORMANCE VERIFICATION MAY BE ACCOMPLISHED IN ACCORDANCE WITH ASTM F2487. HP PIPE SHALL BE FROM A MANUFACTURER WHO IS AN EASTERN STATES CONSORTIUM (ESC) QUALIFIED MANUFACTURER OF HP STORM PIPE AND INSTALLED IN ACCORDANCE WITH PIPE MANUFACTURER RECOMMENDATIONS.
6. PIPE LENGTHS ON THIS PLAN HAVE BEEN MEASURED AS THE DISTANCE BETWEEN THE CENTER POINT OF THE 2 CONNECTED STRUCTURES. ACTUAL PHYSICAL PIPE LENGTH FOR INSTALLATION IS EXPECTED TO BE LESS AND SHOULD BE ACCOUNTED FOR BY THE CONTRACTOR ACCORDINGLY.

GRADING/UTILITY GRAPHIC LEGEND

PROPERTY LINE (PARCEL IN QUESTION)
OFF-SITE PROPERTY LINES

EXIST. CABLE LINE	PROP. CABLE LINE
EXIST. ELECTRIC LINE	PROP. ELECTRIC LINE
EXIST. FIBER OPTIC LINE	PROP. FIBER OPTIC LINE
EXIST. GAS LINE	PROP. GAS LINE
EXIST. OVERHEAD WIRES	PROP. OVERHEAD WIRES
EXIST. TELEPHONE LINE	PROP. TELEPHONE LINE
EXIST. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)	PROP. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
EXIST. WATER LINE	PROP. WATER LINE
EXIST. FIRE SERVICE	PROP. FIRE SERVICE
EXIST. SANITARY SEWER LINE	PROP. SANITARY SEWER LINE
EXIST. FORCE MAIN	PROP. FORCE MAIN
EXIST. STORM DRAIN LINE	PROP. STORM DRAIN LINE
EXIST. MINOR CONTOUR & ELEVATION	UNDERGROUND UTILITY QUALITY LEVEL
EXIST. MAJOR CONTOUR & ELEVATION	PROP. FINISH GRADE CONTOUR & ELEVATION
EXIST. MONITORING WELL	APPROX. TEST PIT LOCATION
EXIST. SPOT ELEVATIONS	PROP. GRADE SPOT ELEV.
EXIST. GUTTER ELEV.	PROP. TOP OF CURB & FINISHED GRADE ELEV.
EXIST. TOP OF CURB ELEV.	PROP. FINISHED FLOOR ELEV.
EXIST. FINISH FLOOR ELEV.	PROP. TOP OF WALL & FINISHED GRADE & LOW SIDE OF WALL (ACTUAL BOTTOM OF WALL FOOTING TO BE ESTABLISHED BY WALL DESIGNER)
EXIST. GARAGE FLOOR ELEV.	
EXIST. FIRE HYDRANT	
EXIST. WATER VALVE	PROP. TOP OF DEPRESSED CURB, END FINISHED GRADE & HIGH SIDE OF DEPRESSED CURB & SLOT FINISHED GRADE & TOP SIDE OF DEPRESSED CURB
EXIST. GAS VALVE	PROP. DIRECTION OF DRAINAGE FLOW ARROW
EXIST. GAS METER	
EXIST. ELECTRIC BOX	
EXIST. CLEAN OUT	PROP. WATER VALVE
EXIST. GAS WELL	PROP. GAS VALVE
EXIST. WATER SHUT OFF VALVE	PROP. STORM CLEANOUT
EXIST. TELEPHONE BOX	PROP. SANITARY CLEANOUT
EXIST. CABLE TV BOX	PROP. AREA LIGHT
EXIST. UTILITY POLE	PROP. OUTLET CONTROL STRUCTURE
EXIST. GUY WIRE	PROP. DRAINAGE MANHOLE
EXIST. LIGHT POLE	PROP. SANITARY SEWER MANHOLE
EXIST. BUILDING LIGHT	PROP. "A" INLET
EXIST. SHOE BOX LIGHT	PROP. "B" INLET
EXIST. COBRA LIGHT POLE	PROP. "E" INLET
EXIST. TRAFFIC SIGNAL POLE	PROP. YARD INLET
EXIST. MANHOLE	PROP. FLARED END SECTION
EXIST. "A" INLET	PROP. HEADWALL
EXIST. "B" INLET	
EXIST. "E" INLET	
EXIST. YARD INLET	
EXIST. FLARED END SECTION	
EXIST. HEADWALL	

GRAPHIC SCALE
-50 0 25 50 100 200
(IN FEET)
1 INCH = 50 FT.

CONTRACTOR TO VERIFY INVERTS OF ALL UTILITIES PRIOR TO CONSTRUCTION TO ENSURE SERVICES CAN BE INSTALLED

NOTE: FINAL ROOF LEADER DESIGN AND LOCATIONS TO BE PROVIDED BY ARCHITECT

SET IS FOR PERMITTING PURPOSES ONLY AND MAY NOT BE USED FOR CONSTRUCTION

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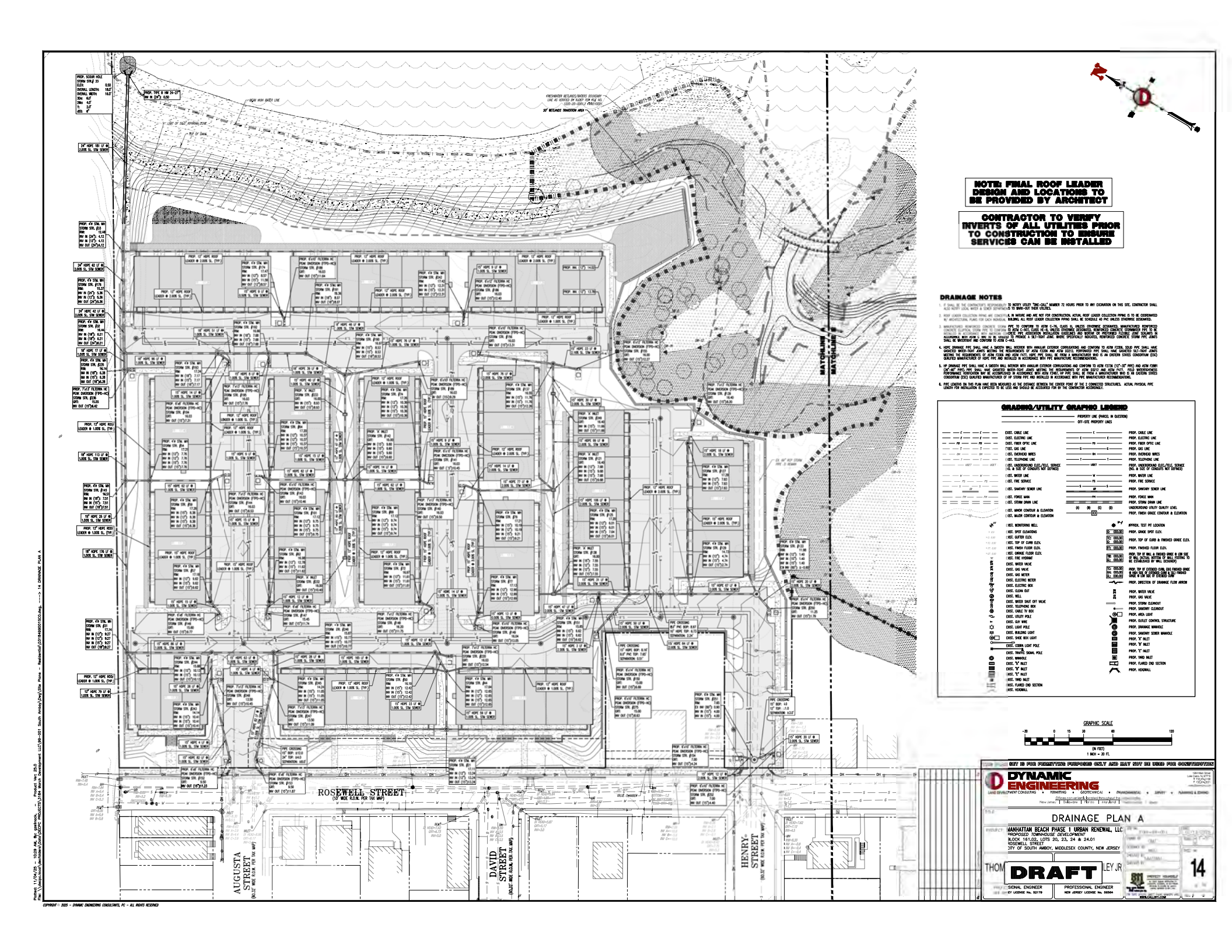
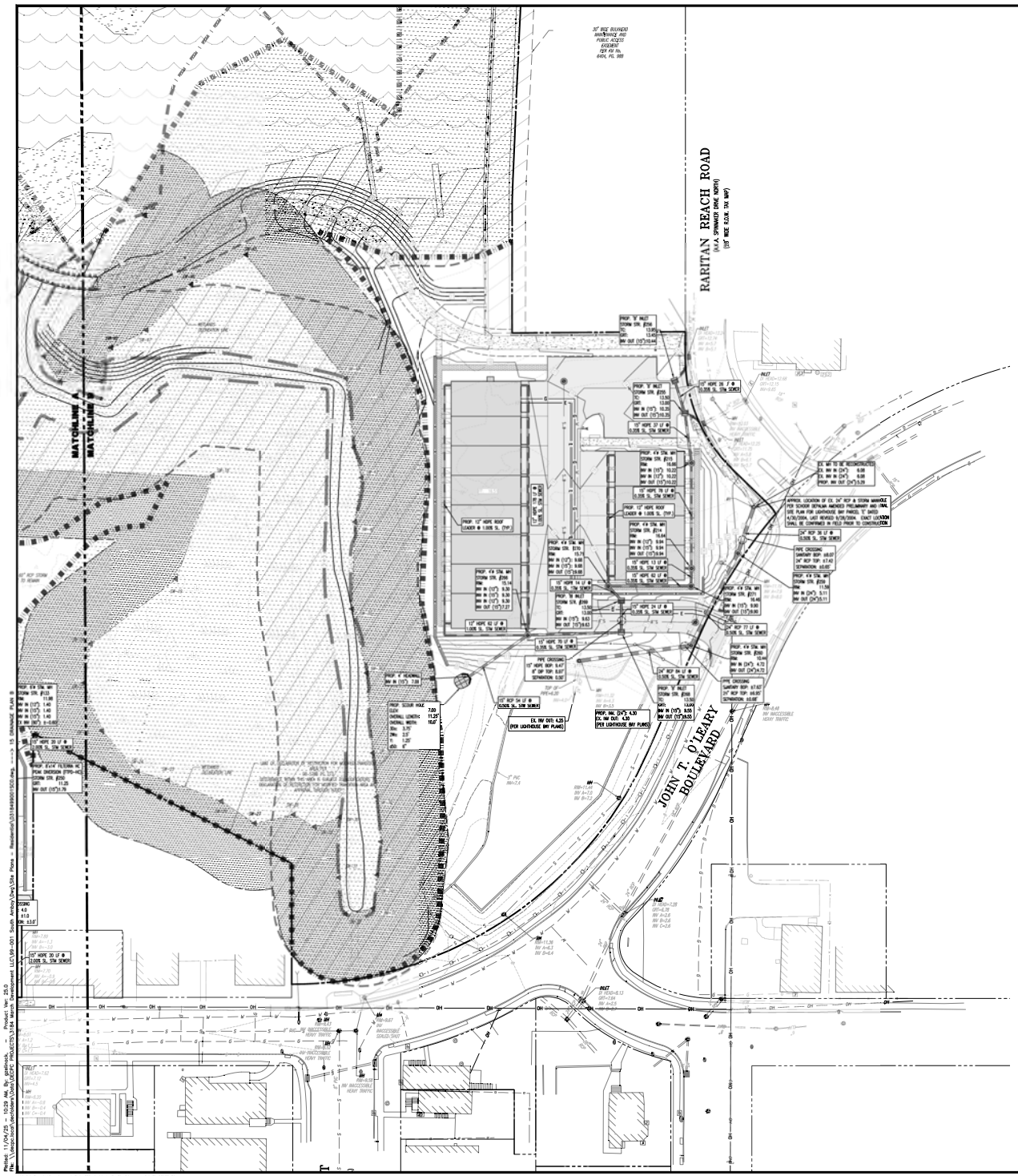
TITLE: OVERALL DRAINAGE PLAN

PROJECT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

THOMAS J. KOLLER JR. — PROFESSIONAL ENGINEER, NEW JERSEY LICENSE No. 50564
DRAFT
SIGNAL ENGINEER, NEW JERSEY LICENSE No. 52179

DATE: 11/04/25 | DRAWN BY: MW | CHECKED BY: TJK | SCALE: AS SHOWN | PROJECT NO.: 2019-001 | SHEET NO.: 13





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CONTRACTOR TO VERIFY INVERTS OF ALL UTILITIES PRIOR TO CONSTRUCTION TO ENSURE SERVICES CAN BE INSTALLED

DRAINAGE NOTES

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY UTILITY "ONE-CALL" NUMBER 72 HOURS PRIOR TO ANY EXCAVATION ON THIS SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER & SEWER DEPARTMENTS TO MARK-OUT THEIR UTILITIES.
2. ROOF LEADER COLLECTION PIPING ARE CONCEPTUAL IN NATURE AND ARE NOT FOR CONSTRUCTION. ACTUAL ROOF LEADER COLLECTION PIPING IS TO BE COORDINATED W/ ARCHITECTURAL PLANS FOR EACH INDIVIDUAL BUILDING. ALL ROOF LEADER COLLECTION PIPING SHALL BE SCHEDULE 40 PVC UNLESS OTHERWISE DESIGNATED.
3. MANUFACTURED REINFORCED CONCRETE STORM PIPE TO CONFORM TO ASTM C-76, CLASS III, UNLESS OTHERWISE DESIGNATED. MANUFACTURED REINFORCED CONCRETE ELLIPTICAL STORM PIPE TO CONFORM TO ASTM C-507, CLASS HE-III, UNLESS OTHERWISE DESIGNATED. REINFORCED CONCRETE STORMWATER PIPE TO BE INSTALLED IN ACCORDANCE WITH AMERICAN CONCRETE PIPE ASSOCIATION INSTALLATION GUIDELINES AND MORTAR OR PREFORMED FLEXIBLE JOINT SEALANTS IN ACCORDANCE WITH ASTM C 990 TO BE UTILIZED TO PROVIDE A SILT-TIGHT JOINT. WHERE SPECIFICALLY INDICATED, REINFORCED CONCRETE STORM PIPE JOINTS SHALL BE WATERTIGHT AND CONFORM TO ASTM C-443.
4. HDPE DRAINAGE PIPE SHALL HAVE A SMOOTH WALL INTERIOR WITH ANNULAR EXTERIOR CORRUGATIONS AND CONFORM TO ASTM F2306. SOLID PIPE SHALL HAVE GASKETED WATER-TIGHT JOINTS MEETING THE REQUIREMENTS OF ASTM F2306 AND ASTM D3212. PERFORATED PIPE SHALL HAVE GASKETED SILT-TIGHT JOINTS MEETING THE REQUIREMENTS OF ASTM F2306 AND ASTM F477. HDPE PIPE SHALL BE FROM A MANUFACTURER WHO IS AN EASTERN STATES CONSORTIUM (ESC) QUALIFIED MANUFACTURER OF HDPE PIPE AND INSTALLED IN ACCORDANCE WITH PIPE MANUFACTURE RECOMMENDATIONS.
5. HP DRAINAGE PIPE SHALL HAVE A SMOOTH WALL INTERIOR WITH ANNULAR EXTERIOR CORRUGATIONS AND CONFORM TO ASTM F2736 (12"-30" PIPE) AND ASTM F2881 (36"-60" PIPE). PIPE SHALL HAVE GASKETED WATER-TIGHT JOINTS MEETING THE REQUIREMENTS OF ASTM D3212 AND ASTM F477. FIELD WATERTIGHTNESS PERFORMANCE VERIFICATION MAY BE ACCOMPLISHED IN ACCORDANCE WITH ASTM F2487. HP PIPE SHALL BE FROM A MANUFACTURER WHO IS AN EASTERN STATES CONSORTIUM (ESC) QUALIFIED MANUFACTURER OF HP STORM PIPE AND INSTALLED IN ACCORDANCE WITH PIPE MANUFACTURER RECOMMENDATIONS.
6. PIPE LENGTHS ON THIS PLAN HAVE BEEN MEASURED AS THE DISTANCE BETWEEN THE CENTER POINT OF THE 2 CONNECTED STRUCTURES. ACTUAL PHYSICAL PIPE LENGTH FOR INSTALLATION IS EXPECTED TO BE LESS AND SHOULD BE ACCOUNTED FOR BY THE CONTRACTOR ACCORDINGLY.

GRADING/UTILITY GRAPHIC LEGEND

▬▬ ‒ ‒ ▬▬	PROPERTY LINE (PARCEL IN QUESTION)
── ‒ ‒ ‒ ──	OFF-SITE PROPERTY LINES

— C —	EXIST. CABLE LINE	— C —	PROP. CABLE LINE
— E —	EXIST. ELECTRIC LINE	— E —	PROP. ELECTRIC LINE
— FO —	EXIST. FIBER OPTIC LINE	— FO —	PROP. FIBER OPTIC LINE
— G —	EXIST. GAS LINE	— G —	PROP. GAS LINE
— OH —	EXIST. OVERHEAD WIRES	— OH —	PROP. OVERHEAD WIRES
— T —	EXIST. TELEPHONE LINE	— T —	PROP. TELEPHONE LINE
— UGET —	EXIST. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)	— UGET —	PROP. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
— W —	EXIST. WATER LINE	— W —	PROP. WATER LINE
— FS —	EXIST. FIRE SERVICE	— FS —	PROP. FIRE SERVICE
— S — OR ═	EXIST. SANITARY SEWER LINE	— S — OR ▬	PROP. SANITARY SEWER LINE
— FM —	EXIST. FORCE MAIN	— FM —	PROP. FORCE MAIN
═ ═ ═	EXIST. STORM DRAIN LINE	▬ ▬ ▬	PROP. STORM DRAIN LINE
		(A) (B) (C) (D)	UNDERGROUND UTILITY QUALITY LEVEL
- - 17 - -	EXIST. MINOR CONTOUR & ELEVATION	— XX —	PROP. FINISH GRADE CONTOUR & ELEVATION
— 10 —	EXIST. MAJOR CONTOUR & ELEVATION		
MW	EXIST. MONITORING WELL	TP-#	APPROX. TEST PIT LOCATION
× 8.9	EXIST. SPOT ELEVATIONS	G: 000.00	PROP. GRADE SPOT ELEV.
× G: 8.90	EXIST. GUTTER ELEV.	TC: 000.00 G: 000.00	PROP. TOP OF CURB & FINISHED GRADE ELEV.
× TC: 8.90	EXIST. TOP OF CURB ELEV.	FF: 000.00	PROP. FINISHED FLOOR ELEV.
× FF: 8.90	EXIST. FINISH FLOOR ELEV.	TW: 000.00 GL: 000.00	PROP. TOP OF WALL & FINISHED GRADE @ LOW SIDE OF WALL (ACTUAL BOTTOM OF WALL FOOTING TO BE ESTABLISHED BY WALL DESIGNER)
× GF: 8.90	EXIST. GARAGE FLOOR ELEV.	TC: 000.00 GH: 000.00 GL: 000.00	PROP. TOP OF EXTENDED CURB, (GH) FINISHED GRADE @ HIGH SIDE OF EXTENDED CURB & (GL) FINISHED GRADE @ LOW SIDE OF EXTENDED CURB
	EXIST. FIRE HYDRANT		PROP. DIRECTION OF DRAINAGE FLOW ARROW
WV	EXIST. WATER VALVE	WV	PROP. WATER VALVE
GV	EXIST. GAS VALVE	GV	PROP. GAS VALVE
GM	EXIST. GAS METER		PROP. STORM CLEANOUT
EM	EXIST. ELECTRIC METER		PROP. SANITARY CLEANOUT
Ebox	EXIST. ELECTRIC BOX		PROP. AREA LIGHT
C/O	EXIST. CLEAN OUT		PROP. OUTLET CONTROL STRUCTURE
W	EXIST. WELL		PROP. DRAINAGE MANHOLE
WSO	EXIST. WATER SHUT OFF VALVE		PROP. SANITARY SEWER MANHOLE
TEL	EXIST. TELEPHONE BOX		PROP. 'A' INLET
	EXIST. CABLE TV BOX		PROP. 'B' INLET
	EXIST. UTILITY POLE		PROP. 'E' INLET
	EXIST. GUY WIRE		PROP. YARD INLET
	EXIST. LIGHT POLE		PROP. FLARED END SECTION
	EXIST. BUILDING LIGHT		PROP. HEADWALL
	EXIST. SHOE BOX LIGHT		
	EXIST. COBRA LIGHT POLE		
	EXIST. TRAFFIC SIGNAL POLE		
	EXIST. MANHOLE		
	EXIST. "A" INLET		
	EXIST. "B" INLET		
	EXIST. "E" INLET		
	EXIST. YARD INLET		
	EXIST. FLARED END SECTION		
	EXIST. HEADWALL		

GRAPHIC SCALE

-30 0 15 30 60 120

(IN FEET)
1 INCH = 30 FT.

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TITLE:

DRAINAGE PLAN B

PROJECT:

MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

THOM

LEY JR

DRAFT

PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 52179

PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 56564

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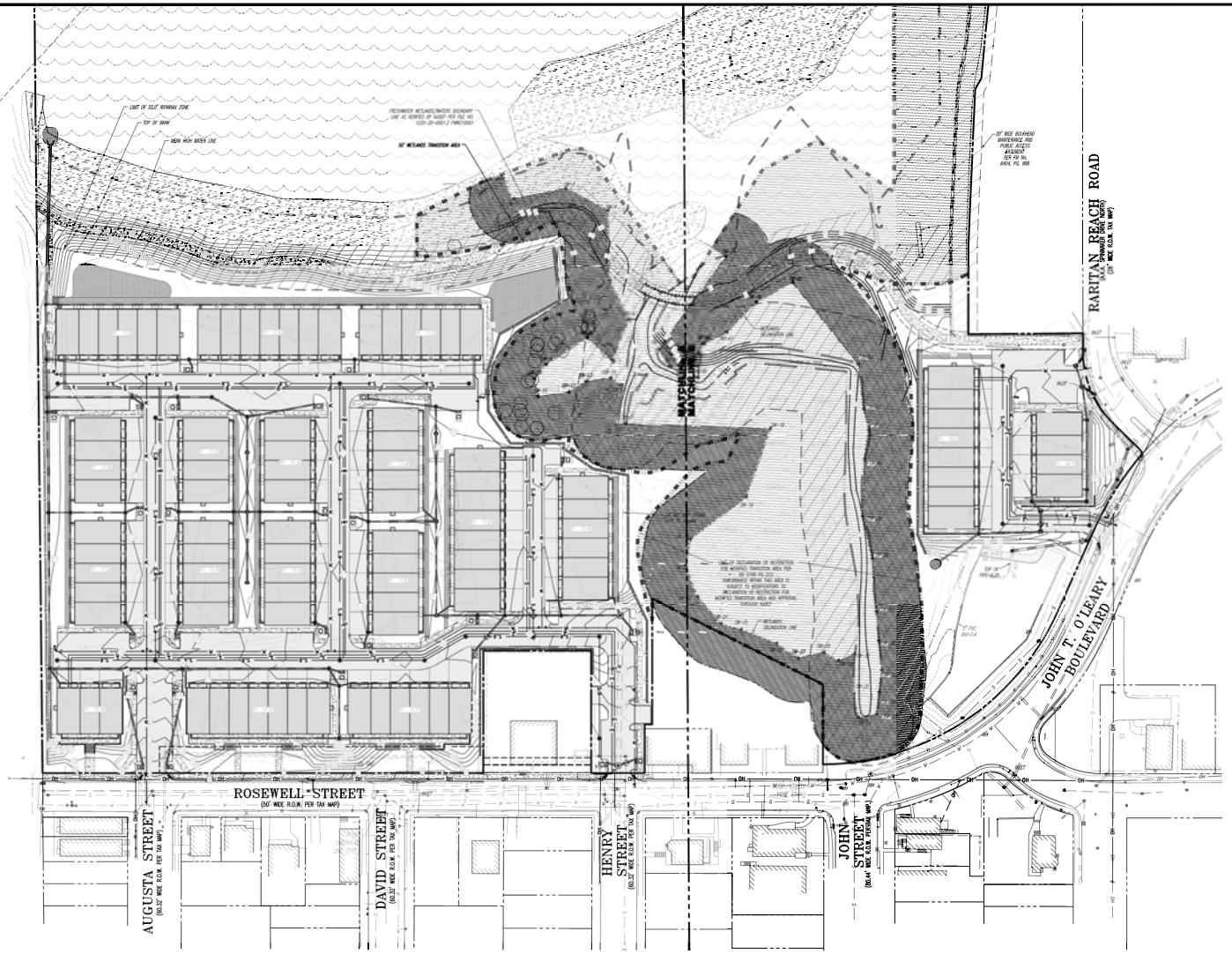
15

Plotted: 11/04/25 – 10:29 AM, By: gzelinack, – Product Ver: 25.0
File: \\decpc.local\decfolders\Data\DECPC PROJECTS\3184 March Development LLC\99-001 South Amboy\Dwg\Site Plans – Residential\031849900150D.dwg ---> 15 DRAINAGE PLAN B



UTILITY NOTES

1. LOCATION OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE CONFIRMED INDEPENDENTLY WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS SHALL BE CONFIRMED INDEPENDENTLY BY THE CONTRACTOR IN FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE ENGINEER. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY UTILITY "ONE-CALL" NUMBER 72 HOURS PRIOR TO ANY EXCAVATION ON THIS SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER & SEWER DEPARTMENTS TO MARK-OUT THEIR UTILITIES.
3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS. WHERE CONFLICTS EXIST WITH THESE SITE PLANS, ENGINEER IS TO BE NOTIFIED PRIOR TO CONSTRUCTION TO RESOLVE SAME. SERVICE SIZES TO BE DETERMINED BY ARCHITECT.
4. WATER SERVICE MATERIALS SHALL BE SPECIFIED BY THE LOCAL UTILITY COMPANY. CONTRACTORS PRICE FOR WATER SERVICE SHALL INCLUDE ALL FEES AND APPURTENANCES REQUIRED BY THE UTILITY TO PROVIDE A COMPLETE WORKING SERVICE.
5. ALL WATER MAIN SHALL BE CEMENT-LINED, CLASS 52 DUCTILE IRON PIPE, UNLESS OTHERWISE DESIGNATED.
6. THE MINIMUM DIAMETER FOR DOMESTIC WATER SERVICES SHALL BE 1 INCH.
7. ALL SANITARY SEWER MAINS SHALL BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST 10 FEET HORIZONTALLY, IF SUCH SEPARATION IS NOT POSSIBLE, THE PIPES SHALL BE IN SEPARATE TRENCHES WITH THE SEWER BEING AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN OR SUCH OTHER SEPARATION AS APPROVED BY THE LOCAL UTILITY. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER SHALL BE PROVIDED. THE APPROVING AUTHORITY MAY REQUIRE CONCRETE OR DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE CROSSING. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER MAIN AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER SHALL BE PROVIDED. THE APPROVING AUTHORITY MAY REQUIRE ADDITIONAL STRUCTURAL SUPPORT FOR STORM SEWER CROSSING OVER SEWER LINES.
8. ALL SANITARY SEWER MAINS SHALL BE SDR-35 PVC PIPE MATERIAL UNLESS OTHERWISE DESIGNATED. SEWER PIPES INSTALLED WITH LESS THAN 3 FEET OF COVER, GREATER THAN 20 FEET OF COVER OR WITHIN 18 INCHES OF A WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE. ALL DUCTILE IRON SEWER PIPE SHALL BE CEMENT-LINED, CLASS 52 PVC, FURNISHED WITH SCHED 40/41 OR APPROVED EQUAL.
9. WHERE SANITARY SEWER LATERALS ARE GREATER THAN 10' DEEP AT CONNECTION TO THE SEWER MAIN, CONCRETE DEEP LATERAL CONNECTIONS ARE TO BE UTILIZED.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILIZATION OF THE EXISTING SEWER MAIN, STRUCTURES AND APPURTENANCES DURING CONNECTION.
11. LOCATION & LAYOUT OF GAS, ELECTRIC & TELECOMMUNICATION UTILITY LINES AND SERVICES SHOWN ON THESE PLANS ARE SCHEMATIC IN NATURE. ACTUAL LOCATION & LAYOUT OF THESE UTILITIES & SERVICES ARE TO BE PER THE APPROPRIATE UTILITY PROVIDER.
12. ALL SEWER AND WATER FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REGULATORY AUTHORITY'S RULES AND REGULATIONS.
13. ALL PROPOSED UTILITIES TO BE INSTALLED UNDERGROUND UNLESS OTHERWISE NOTED.

EXISTING UTILITY NOTES

EXISTING WATER SERVICE NOTE: CONTRACTOR TO LOCATE AND UTILIZE EXISTING WATER SERVICE CONNECTION IF FEASIBLE. OTHERWISE REMOVE EXISTING WATER SERVICE LINE AND CAP IT AT MAIN IN R.O.W. IN ACCORDANCE WITH THE LOCAL WATER COMPANY REQUIREMENTS. TERMINATION AT THE MAIN MUST BE APPROVED BY THE LOCAL WATER COMPANY PRIOR TO COMPLETION. IF THE EXISTING WATER SERVICE CAN NOT BE UTILIZED, THE NEW SERVICE IS TO BE COORDINATED AND VERIFIED FOR LOCATION WITH THE LOCAL WATER COMPANY. CONTRACTOR SHALL OBTAIN ALL REQUIRED STREET OPENING PERMITS FOR REMOVAL OF EXISTING SERVICE AND INSTALLATION OF NEW SERVICE.

EXISTING GAS SERVICE NOTE: CONTRACTOR TO LOCATE AND UTILIZE EXISTING GAS SERVICE CONNECTION IF FEASIBLE. OTHERWISE REMOVE EXISTING GAS SERVICE LINE AND CAP IT AT MAIN IN R.O.W. IN ACCORDANCE WITH THE LOCAL GAS COMPANY REQUIREMENTS. TERMINATION AT THE MAIN MUST BE APPROVED BY THE LOCAL GAS COMPANY PRIOR TO COMPLETION. AND NEW SERVICE IS TO BE COORDINATED AND VERIFIED FOR LOCATION WITH THE LOCAL GAS COMPANY. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED STREET OPENING PERMITS FOR REMOVAL OF EXISTING SERVICE AND INSTALLATION OF NEW SERVICE.

EXISTING SEWER SERVICE NOTE: CONTRACTOR TO LOCATE AND UTILIZE EXISTING SEWER SERVICE CONNECTION IF OF ADEQUATE SIZE AND INTEGRITY AND ACCEPTABLE TO LOCAL SEWER AUTHORITY. OTHERWISE CONTRACTOR TO REMOVE EXISTING SEWER SERVICE LINE AND CAP AT MAIN IN R.O.W. IN ACCORDANCE WITH THE LOCAL SEWER AUTHORITY REQUIREMENTS. TERMINATION AT THE MAIN MUST BE APPROVED BY THE LOCAL SEWER AUTHORITY PRIOR TO COMPLETION. IF EXISTING SEWER SERVICE CAN NOT BE UTILIZED THEN THE NEW SERVICE IS TO BE COORDINATED AND VERIFIED FOR LOCATION WITH THE LOCAL SEWER AUTHORITY. CONTRACTOR SHALL OBTAIN ALL REQUIRED STREET OPENING PERMITS FOR REMOVAL OF EXISTING SERVICE AND INSTALLATION OF NEW SERVICE.

GRADING/UTILITY GRAPHIC LEGEND

PROPERTY LINE (PARCEL IN QUESTION)	
OFF-SITE PROPERTY LINES	
EXIST. CABLE LINE	PROP. CABLE LINE
EXIST. ELECTRIC LINE	PROP. ELECTRIC LINE
EXIST. FIBER OPTIC LINE	PROP. FIBER OPTIC LINE
EXIST. GAS LINE	PROP. GAS LINE
EXIST. OVERHEAD WIRES	PROP. OVERHEAD WIRES
EXIST. TELEPHONE LINE	PROP. TELEPHONE LINE
EXIST. UNDERGROUND ELEC/TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)	PROP. UNDERGROUND ELEC/TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
EXIST. WATER LINE	PROP. WATER LINE
EXIST. FIRE SERVICE	PROP. FIRE SERVICE
EXIST. SANITARY SEWER LINE	PROP. SANITARY SEWER LINE
EXIST. FORCE MAIN	PROP. FORCE MAIN
EXIST. STORM DRAIN LINE	PROP. STORM DRAIN LINE
EXIST. MINOR CONTOUR & ELEVATION	UNDERGROUND UTILITY QUALITY LEVEL
EXIST. MAJOR CONTOUR & ELEVATION	PROP. FINISH GRADE CONTOUR & ELEVATION
EXIST. MONITORING WELL	APPROX. TEST PIT LOCATION
EXIST. SPOT ELEVATIONS	PROP. GRADE SPOT ELEV.
EXIST. GUTTER ELEV.	PROP. TOP OF CURB & FINISHED GRADE ELEV.
EXIST. TOP OF CURB ELEV.	PROP. FINISHED FLOOR ELEV.
EXIST. FINISH FLOOR ELEV.	PROP. TOP OF WALL & FINISHED GRADE & LOW SIDE OF WALL (ACTUAL BOTTOM OF WALL FOOTING TO BE ESTABLISHED BY WALL DESIGNER)
EXIST. GARAGE FLOOR ELEV.	
EXIST. FIRE HYDRANT	
EXIST. WATER VALVE	PROP. TOP OF DEPRESSED CURB, END FINISHED GRADE & HIGH SIDE OF DEPRESSED CURB & (BJ FINISHED GRADE @ THE SIDE OF DEPRESSED CURB
EXIST. GAS VALVE	
EXIST. GAS METER	PROP. DIRECTION OF DRAINAGE FLOW ARROW
EXIST. ELECTRIC METER	
EXIST. ELECTRIC BOX	
EXIST. CLEAN OUT	PROP. WATER VALVE
EXIST. WELL	PROP. GAS VALVE
EXIST. WATER SHUT OFF VALVE	PROP. STORM CLEANOUT
EXIST. TELEPHONE BOX	PROP. SANITARY CLEANOUT
EXIST. CABLE TV BOX	PROP. AREA LIGHT
EXIST. UTILITY POLE	PROP. OUTLET CONTROL STRUCTURE
EXIST. GUY WIRE	PROP. GARAGE MANHOLE
EXIST. LIGHT POLE	PROP. SANITARY SEWER MANHOLE
EXIST. BUILDING LIGHT	PROP. 'A' INLET
EXIST. SHOE BOX LIGHT	PROP. 'B' INLET
EXIST. COBRA LIGHT POLE	PROP. 'C' INLET
EXIST. TRAFFIC SIGNAL POLE	PROP. 'I' INLET
EXIST. MANHOLE	PROP. YARD INLET
EXIST. 'A' INLET	PROP. FLARED END SECTION
EXIST. 'B' INLET	PROP. HEADWALL
HIST. 'C' INLET	
HIST. YARD INLET	
HIST. FLARED END SECTION	
HIST. HEADWALL	

GRAPHIC SCALE

-50 0 25 50 100 200

(IN FEET)

1 INCH = 50 FT.

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TITLE: OVERALL UTILITY PLAN

PROJECT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No:	3184-99-001
DATE:	10/13/2025
DRAWN BY:	GMZ
SCALE:	AS SHOWN
DESIGNED BY:	MDC
SHEET No:	16
CHECKED BY:	TJM/DMH
CHECKED BY:	-

THOMAS J. MALLEY JR. — PROFESSIONAL ENGINEER — NEW JERSEY LICENSE No. 50564
DRAFT
DAVID M. HOLLENDER — PROFESSIONAL ENGINEER — NEW JERSEY LICENSE No. 52179

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Rev. # 0

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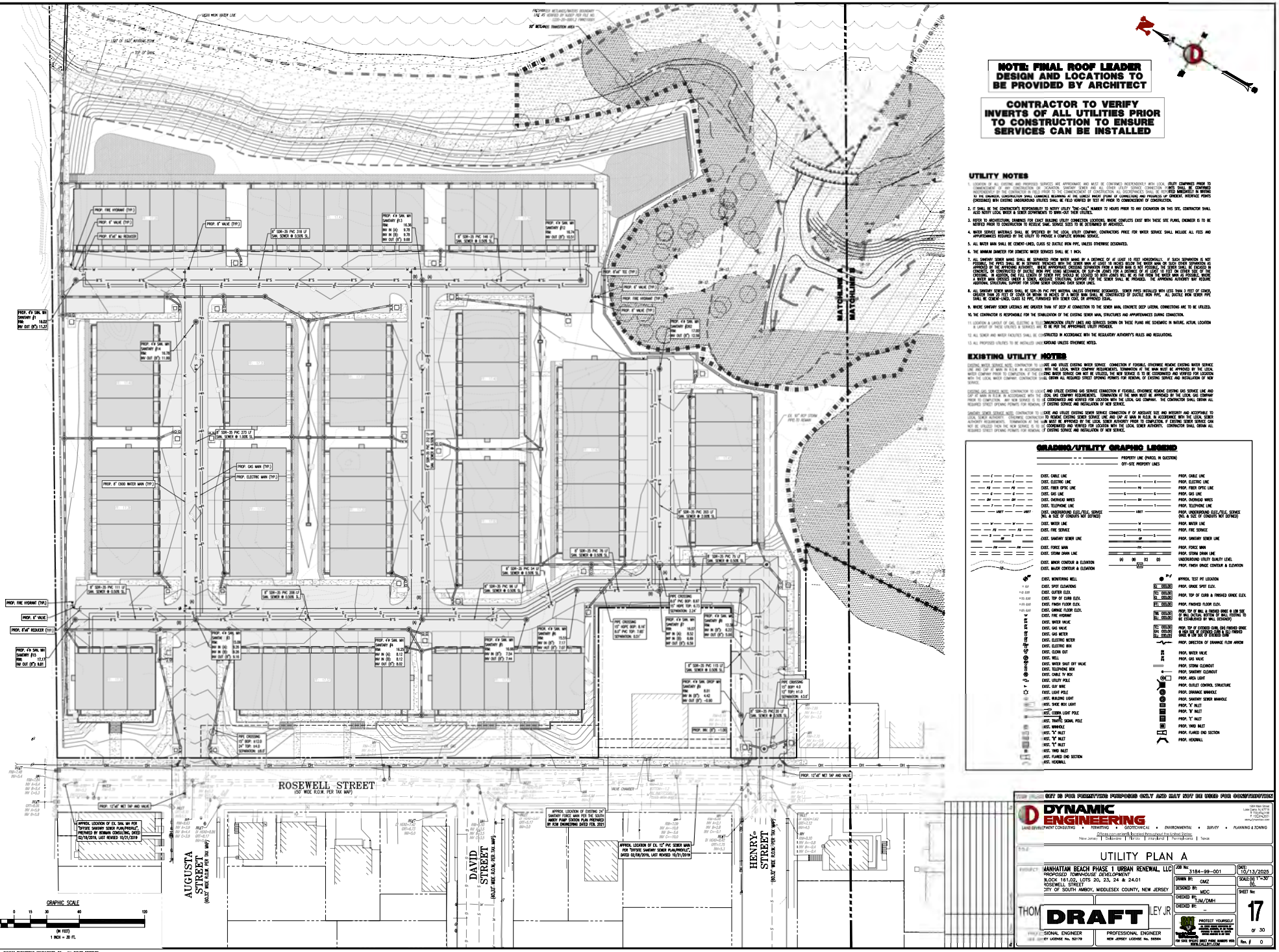
Product: Ver. 25.0



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5. ALL WATER MAIN SHALL BE CEMENT-LINED, CLASS 52 DUCTILE IRON PIPE, UNLESS OTHERWISE DESIGNATED.
6. THE MINIMUM DIAMETER FOR DOMESTIC WATER SERVICES SHALL BE 1 INCH.
7. ALL SANITARY SEWER MAINS SHALL BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST 10 FEET HORIZONTALLY. IF SUCH SEPARATION IS NOT POSSIBLE, THE PIPES SHALL BE IN SEPARATE TRENCHES WITH THE SEWER MAIN AT LEAST 18 INCHES BELOW THE WATER MAIN OR SUCH OTHER SEPARATION AS APPROVED BY THE APPROVING AUTHORITY. WHERE APPROPRIATE CROSSING SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER SHALL BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE CROSSING. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER MAIN AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER SHALL BE PROVIDED. THE APPROVING AUTHORITY MAY REQUIRE ADDITIONAL STRUCTURAL SUPPORT FOR STORM SEWER CROSSING OVER SEWER LINES.
8. ALL SANITARY SEWER MAINS SHALL BE SDR-35 PVC PIPE MATERIAL UNLESS OTHERWISE DESIGNATED. SEWER PIPES INSTALLED WITH LESS THAN 3 FEET OF COVER, GREATER THAN 20 FEET OF COVER OR WITHIN 18 INCHES OF A WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE. ALL DUCTILE IRON SEWER PIPE SHALL BE CEMENT-LINED, CLASS 52 PIPE, FURNISHED WITH STAND CAST, OR APPROVED EQUAL.
9. WHERE SANITARY SEWER LATERALS ARE GREATER THAN 10' DEEP AT CONNECTION TO THE SEWER MAIN, CONCRETE DEEP LATERAL CONNECTIONS ARE TO BE UTILIZED.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILIZATION OF THE EXISTING SEWER MAIN, STRUCTURES AND APPURTENANCES DURING CONNECTION.
11. LOCATION & LAYOUT OF GAS, ELECTRIC & TELEPHONE UNDERGROUND UTILITY LINES AND SERVICES SHOWN ON THESE PLANS ARE SCHEMATIC IN NATURE, ACTUAL LOCATION & LAYOUT OF THESE UTILITIES & SERVICES ARE TO BE PER THE APPROPRIATE UTILITY PROVIDER.
12. ALL SEWER AND WATER FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REGULATORY AUTHORITY'S RULES AND REGULATIONS.
13. ALL PROPOSED UTILITIES TO BE INSTALLED UNDERGROUND UNLESS OTHERWISE NOTED.

EXISTING UTILITY NOTES

EXISTING WATER SERVICE NOTE: CONTRACTOR TO LOCATE AND UTILIZE EXISTING WATER SERVICE. CONNECTION IF FEASIBLE, OTHERWISE REMOVE EXISTING WATER SERVICE LINE AND CAP AT MAIN IN R.O.W. IN ACCORDANCE WITH THE LOCAL WATER COMPANY REQUIREMENTS. TERMINATION AT THE MAIN MUST BE APPROVED BY THE LOCAL WATER COMPANY PRIOR TO COMPLETION. IF THE EXISTING WATER SERVICE CAN NOT BE UTILIZED, THE NEW SERVICE IS TO BE COORDINATED AND VERIFIED FOR LOCATION WITH THE LOCAL WATER COMPANY. CONTRACTOR SHALL OBTAIN ALL REQUIRED STREET OPENING PERMITS FOR REMOVAL OF EXISTING SERVICE AND INSTALLATION OF NEW SERVICE.

EXISTING GAS SERVICE NOTE: CONTRACTOR TO LOCATE AND UTILIZE EXISTING GAS SERVICE CONNECTION IF FEASIBLE, OTHERWISE REMOVE EXISTING GAS SERVICE LINE AND CAP AT MAIN IN R.O.W. IN ACCORDANCE WITH THE LOCAL GAS COMPANY REQUIREMENTS. TERMINATION AT THE MAIN MUST BE APPROVED BY THE LOCAL GAS COMPANY PRIOR TO COMPLETION. IF THE EXISTING GAS SERVICE CAN NOT BE UTILIZED, THE NEW SERVICE IS TO BE COORDINATED AND VERIFIED FOR LOCATION WITH THE LOCAL GAS COMPANY. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED STREET OPENING PERMITS FOR REMOVAL OF EXISTING SERVICE AND INSTALLATION OF NEW SERVICE.

SANITARY SEWER SERVICE NOTE: CONTRACTOR TO LOCATE AND UTILIZE EXISTING SEWER SERVICE CONNECTION IF OF ADEQUATE SIZE AND INTEGRITY AND ACCEPTABLE TO LOCAL SEWER AUTHORITY. OTHERWISE, CONTRACTOR TO REMOVE EXISTING SEWER SERVICE LINE AND CAP AT MAIN IN R.O.W. IN ACCORDANCE WITH THE LOCAL SEWER AUTHORITY REQUIREMENTS. TERMINATION AT THE MAIN MUST BE APPROVED BY THE LOCAL SEWER AUTHORITY PRIOR TO COMPLETION. IF EXISTING SEWER SERVICE CAN NOT BE UTILIZED THEN THE NEW SERVICE IS TO BE COORDINATED AND VERIFIED FOR LOCATION WITH THE LOCAL SEWER AUTHORITY. CONTRACTOR SHALL OBTAIN ALL REQUIRED STREET OPENING PERMITS FOR REMOVAL OF EXISTING SERVICE AND INSTALLATION OF NEW SERVICE.

GRADING/UTILITY GRAPHIC LEGEND

PROPERTY LINE (PARCEL IN QUESTION)
OFF-SITE PROPERTY LINES

EXIST. CABLE LINE	PROP. CABLE LINE
EXIST. ELECTRIC LINE	PROP. ELECTRIC LINE
EXIST. FIBER OPTIC LINE	PROP. FIBER OPTIC LINE
EXIST. GAS LINE	PROP. GAS LINE
EXIST. OVERHEAD WIRES	PROP. OVERHEAD WIRES
EXIST. TELEPHONE LINE	PROP. TELEPHONE LINE
EXIST. UNDERGROUND ELEC/TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)	PROP. UNDERGROUND ELEC/TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
EXIST. WATER LINE	PROP. WATER LINE
EXIST. FIRE SERVICE	PROP. FIRE SERVICE
EXIST. SANITARY SEWER LINE	PROP. SANITARY SEWER LINE
EXIST. FORCE MAIN	PROP. FORCE MAIN
EXIST. STORM DRAIN LINE	PROP. STORM DRAIN LINE
EXIST. MINOR CONTOUR & ELEVATION	UNDERGROUND UTILITY QUALITY LEVEL
EXIST. MAJOR CONTOUR & ELEVATION	PROP. FINISH GRADE CONTOUR & ELEVATION
EXIST. MONITORING WELL	APPROX. TEST PIT LOCATION
EXIST. SPOT ELEVATIONS	PROP. GRADE SPOT ELEV.
EXIST. GUTTER ELEV.	PROP. TOP OF CURB & FINISHED GRADE ELEV.
EXIST. TOP OF CURB ELEV.	PROP. FINISHED FLOOR ELEV.
EXIST. FINISH FLOOR ELEV.	PROP. TOP OF WALL & FINISHED GRADE ELEV. (OR TOP OF RETAINING WALL & TOP OF RAILING)
EXIST. GRADE FLOOR ELEV.	PROP. TOP OF WALL & FINISHED GRADE ELEV. (OR TOP OF WALL, BOTTOM OF WALL/FOOTING TO BE ESTABLISHED BY WALL DESIGNER)
EXIST. FIRE HYDRANT	
EXIST. WATER VALVE	PROP. TOP OF SHRUBS OVER 3'H. (FINISHED GRADE & TOP OF SHRUBS OVER 3'H. TO BE DETERMINED BY LANDSCAPE ARCHITECT)
EXIST. GAS VALVE	
EXIST. GAS METER	
EXIST. ELECTRIC METER	PROP. DIRECTION OF DRAINAGE FLOW ARROW
EXIST. ELECTRIC BOX	
EXIST. CLEAN OUT	PROP. WATER VALVE
EXIST. WELL	PROP. GAS VALVE
EXIST. WATER SHUT OFF VALVE	PROP. STORM CLEANOUT
EXIST. TELEPHONE BOX	PROP. SANITARY CLEANOUT
EXIST. CABLE TV BOX	PROP. AREA LIGHT
EXIST. UTILITY POLE	PROP. OUTLET CONTROL STRUCTURE
EXIST. GUY WIRE	PROP. DRAINAGE MANHOLE
EXIST. LIGHT POLE	PROP. SANITARY SEWER MANHOLE
MISC. BUILDING LIGHT	PROP. "A" INLET
MISC. SHOE BOX LIGHT	PROP. "B" INLET
MISC. COBRA LIGHT POLE	PROP. "C" INLET
MISC. TRAFFIC SIGNAL POLE	PROP. YARD INLET
MISC. MANHOLE	PROP. FLARED END SECTION
MISC. "A" INLET	PROP. HEADWALL
MISC. "B" INLET	
MISC. "C" INLET	
MISC. YARD INLET	
MISC. FLARED END SECTION	
MISC. HEADWALL	

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www.dynamicengineering.com

UTILITY PLAN A

MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No: 3184-99-001
DATE: 10/13/2025
SCALE: AS SHOWN
DRAWN BY: GMZ
DESIGNED BY: MDC
CHECKED BY: TJM/DMH
CHECKED BY: -
SHEET No: 17 OF 30
Rev. # 0

THOMAS J. MANLEY JR
DRAFT
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 56564
SIGNAL ENGINEER
LICENSE No. 52179

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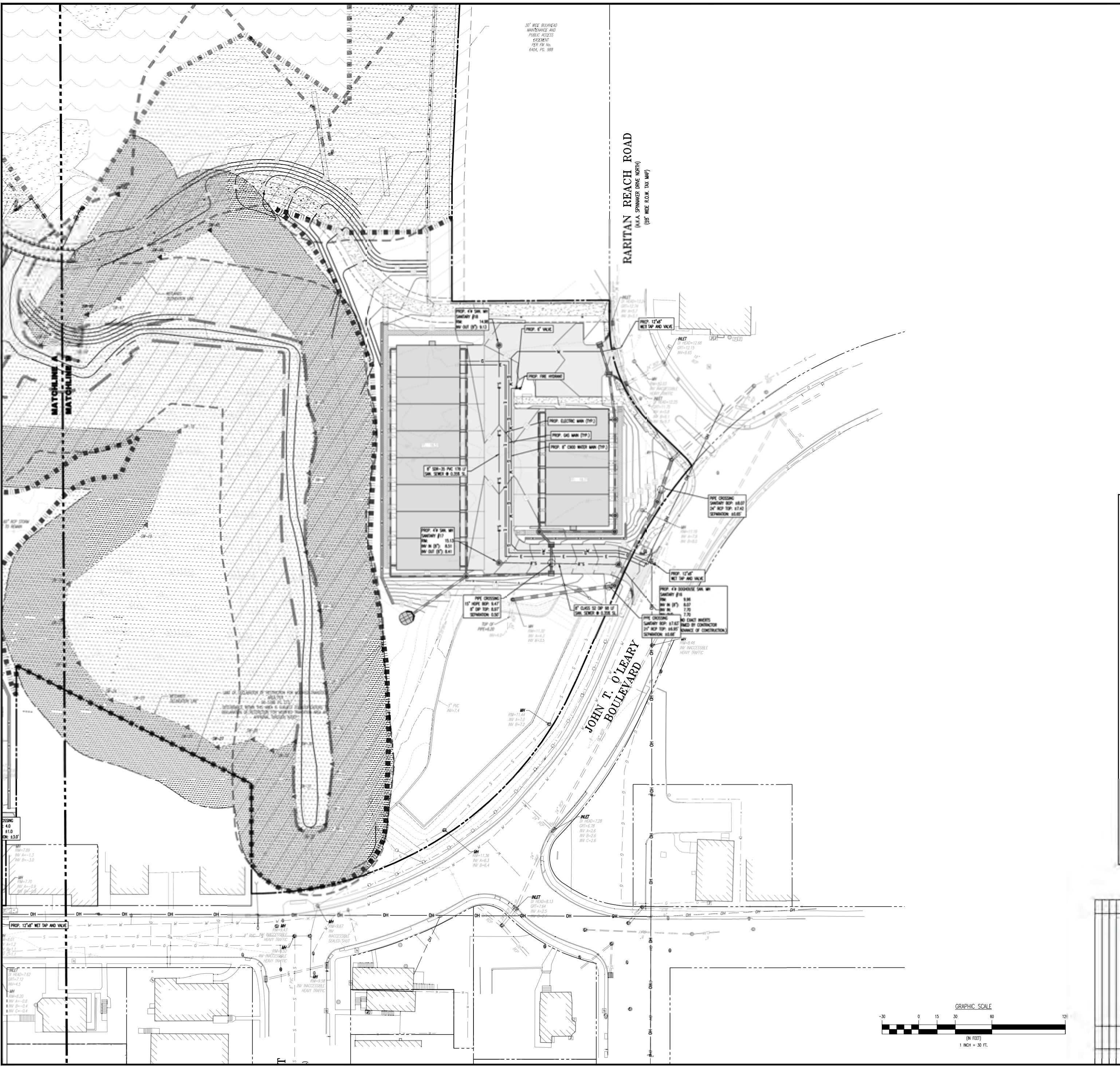

NOTE: FINAL ROOF LEADER DESIGN AND LOCATIONS TO BE PROVIDED BY ARCHITECT

CONTRACTOR TO VERIFY INVERTS OF ALL UTILITIES PRIOR TO CONSTRUCTION TO ENSURE SERVICES CAN BE INSTALLED

UTILITY NOTES

1. LOCATION OF ALL EXISTING AND PROPOSED SERVICES ARE APPROXIMATE AND MUST BE CONFIRMED INDEPENDENTLY WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICE CONNECTION POINTS SHALL BE CONFIRMED INDEPENDENTLY BY THE CONTRACTOR IN FIELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE ENGINEER. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST INVERT (POINT OF CONNECTION) AND PROGRESS UP GRADIENT. INTERFACE POINTS (CROSSINGS) WITH EXISTING UNDERGROUND UTILITIES SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY UTILITY "ONE-CALL" NUMBER 72 HOURS PRIOR TO ANY EXCAVATION ON THIS SITE. CONTRACTOR SHALL ALSO NOTIFY LOCAL WATER & SEWER DEPARTMENTS TO MARK-OUT THEIR UTILITIES.
3. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT BUILDING UTILITY CONNECTION LOCATIONS. WHERE CONFLICTS EXIST WITH THESE SITE PLANS, ENGINEER IS TO BE NOTIFIED PRIOR TO CONSTRUCTION TO RESOLVE SAME. SERVICE SIZES TO BE DETERMINED BY ARCHITECT.
4. WATER SERVICE MATERIALS SHALL BE SPECIFIED BY THE LOCAL UTILITY COMPANY. CONTRACTORS PRICE FOR WATER SERVICE SHALL INCLUDE ALL FEES AND APPURTENANCES REQUIRED BY THE UTILITY TO PROVIDE A COMPLETE WORKING SERVICE.
5. ALL WATER MAIN SHALL BE CEMENT-LINED, CLASS 52 DUCTILE IRON PIPE, UNLESS OTHERWISE DESIGNATED.
6. THE MINIMUM DIAMETER FOR DOMESTIC WATER SERVICES SHALL BE 1 INCH.
7. ALL SANITARY SEWER MAINS SHALL BE SEPARATED FROM WATER MAINS BY A DISTANCE OF AT LEAST 10 FEET HORIZONTALLY. IF SUCH SEPARATION IS NOT POSSIBLE, THE PIPES SHALL BE IN SEPARATE TRENCHES WITH THE SEWER MAIN AT LEAST 18 INCHES BELOW THE WATER MAIN OR SUCH OTHER SEPARATION AS APPROVED BY THE APPROVING AUTHORITY. WHERE APPROPRIATE CROSSING SEPARATION FROM A WATER MAIN IS NOT POSSIBLE, THE SEWER SHALL BE ENCASED IN CONCRETE, OR CONSTRUCTED OF DUCTILE IRON PIPE USING MECHANICAL OR SLIP-ON JOINTS FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE CROSSING. IN ADDITION, ONE FULL LENGTH OF SEWER PIPE SHOULD BE LOCATED SO BOTH JOINTS WILL BE AS FAR FROM THE WATER MAIN AS POSSIBLE. WHERE A WATER MAIN CROSSES UNDER A SEWER, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER SHALL BE PROVIDED. THE APPROVING AUTHORITY MAY REQUIRE ADDITIONAL STRUCTURAL SUPPORT FOR STORM SEWER CROSSING OVER SEWER LINES.
8. ALL SANITARY SEWER MAINS SHALL BE SDR-35 PVC PIPE MATERIAL UNLESS OTHERWISE DESIGNATED. SEWER PIPES INSTALLED WITH LESS THAN 3 FEET OF COVER, GREATER THAN 20 FEET OF COVER OR WITHIN 18 INCHES OF A WATER MAIN SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE. ALL DUCTILE IRON SEWER PIPE SHALL BE CEMENT-LINED, CLASS 52 PIPE, FURNISHED WITH SEWER COAT, OR APPROVED EQUAL.
9. WHERE SANITARY SEWER LATERALS ARE GREATER THAN 10' DEEP AT CONNECTION TO THE SEWER MAIN, CONCRETE DEEP LATERAL CONNECTIONS ARE TO BE UTILIZED.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILIZATION OF THE EXISTING SEWER MAIN, STRUCTURES AND APPURTENANCES DURING CONNECTION.
11. LOCATION & LAYOUT OF GAS, ELECTRIC & TELECOMMUNICATION UTILITY LINES AND SERVICES SHOWN ON THESE PLANS ARE SCHEMATIC IN NATURE. ACTUAL LOCATION & LAYOUT OF THESE UTILITIES & SERVICES ARE TO BE PER THE APPROPRIATE UTILITY PROVIDER.
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GRADING/UTILITY GRAPHIC LEGEND

PROPERTY LINE (PARCEL IN QUESTION)
OFF-SITE PROPERTY LINES

— C — C —	EXIST. CABLE LINE	— C —	PROP. CABLE LINE
— E — E —	EXIST. ELECTRIC LINE	— E — E —	PROP. ELECTRIC LINE
— FO — FO —	EXIST. FIBER OPTIC LINE	— FO —	PROP. FIBER OPTIC LINE
— G — G —	EXIST. GAS LINE	— G — G —	PROP. GAS LINE
— OH — OH —	EXIST. OVERHEAD WIRES	— OH —	PROP. OVERHEAD WIRES
— T — T —	EXIST. TELEPHONE LINE	— T — T —	PROP. TELEPHONE LINE
— UGET — UGET —	EXIST. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)	— UGET —	PROP. UNDERGROUND ELEC./TELE. SERVICE (NO. & SIZE OF CONDUITS NOT DEFINED)
— W — W —	EXIST. WATER LINE	— W —	PROP. WATER LINE
— FS — FS —	EXIST. FIRE SERVICE	— FS —	PROP. FIRE SERVICE
— S — S — OR	EXIST. SANITARY SEWER LINE	— S — S — OR	PROP. SANITARY SEWER LINE
— FM — FM —	EXIST. FORCE MAIN	— FM —	PROP. FORCE MAIN
	EXIST. STORM DRAIN LINE		PROP. STORM DRAIN LINE
		(A) (B) (C) (D)	UNDERGROUND UTILITY QUALITY LEVEL
17	EXIST. MINOR CONTOUR & ELEVATION	XX	PROP. FINISH GRADE CONTOUR & ELEVATION
10	EXIST. MAJOR CONTOUR & ELEVATION		
MW	EXIST. MONITORING WELL	TP-#	APPROX. TEST PIT LOCATION
× 8.9	EXIST. SPOT ELEVATIONS	G: 000.00	PROP. GRADE SPOT ELEV.
× G: 8.90	EXIST. GUTTER ELEV.	TC: 000.00 G: 000.00	PROP. TOP OF CURB & FINISHED GRADE ELEV.
× TC: 8.90	EXIST. TOP OF CURB ELEV.		
× FF: 8.90	EXIST. FINISH FLOOR ELEV.	FF: 000.00	PROP. FINISHED FLOOR ELEV.
× GF: 8.90	EXIST. GARAGE FLOOR ELEV.	TW: 000.00 GL: 000.00	PROP. TOP OF WALL & FINISHED GRADE @ LOW SIDE OF WALL (ACTUAL BOTTOM OF WALL FOOTING TO BE ESTABLISHED BY WALL DESIGNER)
	EXIST. FIRE HYDRANT		
WV	EXIST. WATER VALVE		
GV	EXIST. GAS VALVE	TC: 000.00 GH: 000.00 GL: 000.00	PROP. TOP OF EXTENDED CURB, (GH) FINISHED GRADE @ HIGH SIDE OF EXTENDED CURB & (GL) FINISHED GRADE @ LOW SIDE OF EXTENDED CURB
GM	EXIST. GAS METER		
EM	EXIST. ELECTRIC METER		PROP. DIRECTION OF DRAINAGE FLOW ARROW
Elbox	EXIST. ELECTRIC BOX		
C/O	EXIST. CLEAN OUT	WV	PROP. WATER VALVE
W	EXIST. WELL	GV	PROP. GAS VALVE
WSO	EXIST. WATER SHUT OFF VALVE		PROP. STORM CLEANOUT
TEL	EXIST. TELEPHONE BOX		PROP. SANITARY CLEANOUT
	EXIST. CABLE TV BOX		PROP. AREA LIGHT
	EXIST. UTILITY POLE		PROP. OUTLET CONTROL STRUCTURE
	EXIST. GUY WIRE		PROP. DRAINAGE MANHOLE
	EXIST. LIGHT POLE		PROP. SANITARY SEWER MANHOLE
	XIST. BUILDING LIGHT		PROP. 'A' INLET
	XIST. SHOE BOX LIGHT		PROP. 'B' INLET
	XIST. COBRA LIGHT POLE		PROP. 'E' INLET
	XIST. TRAFFIC SIGNAL POLE		PROP. YARD INLET
	XIST. MANHOLE		PROP. FLARED END SECTION
	XIST. "A" INLET		PROP. HEADWALL
	XIST. "B" INLET		
	XIST. "E" INLET		
	XIST. YARD INLET		
	XIST. FLARED END SECTION		
	XIST. HEADWALL		

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UTILITY PLAN B

MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No:	3184-99-001
DATE:	10/13/2025
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SCALE:	(H) 1"=30' (V)_
DESIGNED BY:	MDC
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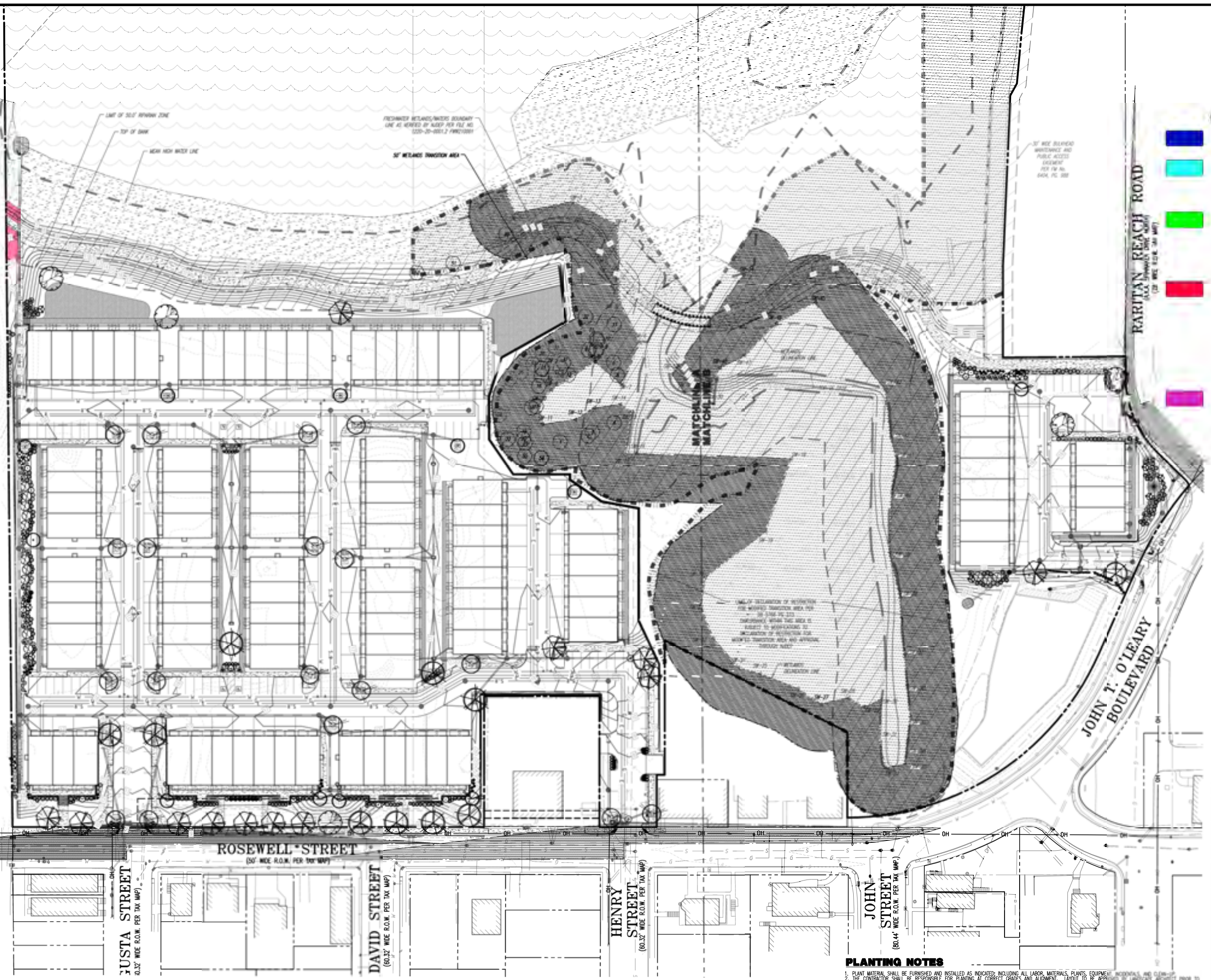

REVEGETATION SCHEDULE & LEGEND

8,185 SF (0.19 AC.)

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EXISTING TREES TO REMAIN INVENTORY

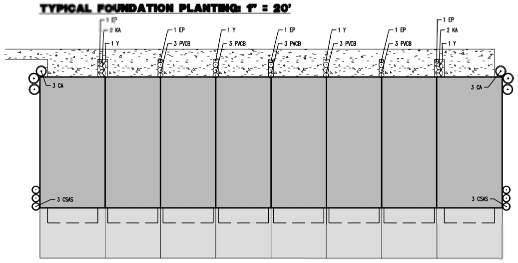
0	Pyrus calleryana	Bradford Pear	9"	Exotic
1	Ulmus pumila	Siberian Elm	7"	Exotic
2	Ulmus pumila	Siberian Elm	6" / 3"	Exotic
3	Robinia Pseudoacacia	Black Locust	9.5"	Adventive
4	Gleditsia triacanthos	Honey Locust	5"	Native
5	Tilia platyphyllos	Large-leaved Linden	5.5"	Exotic
6	Morus alba	White Mulberry	8" / 9"	Exotic
7	Morus alba	White Mulberry	14" / 9" / 9" / 10"	Exotic
8	Acer saccharinum	Silver Maple	5" / 7.5"	Native
9	Acer saccharinum	Silver Maple	5"	Native
10	Acer saccharinum	Silver Maple	5" / 8"	Native
11	Gleditsia triacanthos	Honey Locust	12.5"	Native
12	Gleditsia triacanthos	Honey Locust	5"	Native
13	Acer negundo	Boxelder	7.5"	Native
14	Acer platanoides	Norway Maple	8"	Exotic
15	Acer platanoides	Norway Maple	6" / 8"	Exotic
16	Celtis occidentalis	Hackberry	5"	Native
17	Catalpa speciosa	Catalpa	6"	Exotic
18	Robinia Pseudoacacia	Black Locust	6"	Adventive
19	Robinia Pseudoacacia	Black Locust	6"	Adventive
20	Robinia Pseudoacacia	Black Locust	7"	Adventive
21	Robinia Pseudoacacia	Black Locust	7"	Adventive
22	Acer platanoides	Norway Maple	6" / 8"	Exotic
23	Acer platanoides	Norway Maple	9" / 9.5" / 10"	Exotic
24	Robinia Pseudoacacia	Black Locust	8"	Adventive
25	Celtis occidentalis	Hackberry	8"	Native
26	Acer negundo	Boxelder	5"	Native
27	Acer negundo	Boxelder	6"	Native
28	Acer negundo	Boxelder	7"	Native
29	Acer negundo	Boxelder	6"	Native
30	Acer platanoides	Norway Maple	10"	Exotic
31	Robinia Pseudoacacia	Black Locust	6"	Adventive
32	Robinia Pseudoacacia	Black Locust	5"	Adventive
33	Gleditsia triacanthos	Honey Locust	5" / 7"	Native
49	Catalpa speciosa	Catalpa	4" / 4"	Exotic
51	Gleditsia triacanthos	Honey Locust	6"	Native
52	Robinia Pseudoacacia	Black Locust	8"	Adventive
53	Robinia Pseudoacacia	Black Locust	8"	Adventive
54	Acer negundo	Boxelder	6"	Native
55	Acer negundo	Boxelder	6"	Native

LANDSCAPE COMPLIANCE CHART

ORDINANCE SECTION	REQUIREMENT	CALCULATIONS	COMPLIANCE
§ 53-79.A(5)a	A MINIMUM OF ONE-HALF (1/2) OF THE PERIPHERY THAT REQUIRED A BUFFER SHALL HAVE A BUFFER AT LEAST TEN (10) FEET WIDE WHICH SHALL BE DESIGNED, PLANTED, GRADED, LANDSCAPED AND DEVELOPED TO OBSCURE THE ACTIVITIES OF THE SITE FROM VIEW. IN ADDITION, THE PERIPHERY THAT REQUIRE A BUFFER SHALL CONSIST OF AT LEAST THE FOLLOWING: FENCING OR WALLS IN A LANDSCAPED AREA NOT LESS THAN TEN (10) FEET WIDE; A LANDSCAPED AREA WITH AT LEAST 5 (5) FEET HIGH GROWTH.	BUFFERS ARE REQUIRED AND HAVE BEEN PROPOSED ALONG ALL LOT AND STREET LINES WHICH SEPARATE A NON RESIDENTIAL USE (NORTH) FROM EITHER AND EXITING RESIDENTIAL USE OR RESIDENTIAL ZONING DISTRICT.	COMPLIES
§ 53-79.A(5)c.2	PLANT MATERIAL USED IN SCREEN PLANTINGS SHALL BE AT LEAST THREE (3) FEET IN HEIGHT WHEN PLANTED AND BE OF SUCH DENSITY AS WILL OBSCURE, THROUGHOUT THE FULL COURSE OF THE YEAR, THE GLARE OF THE AUTOMOBILES HEADLIGHTS EMITTED FROM THE PREMISES.	SCREENING PLANT MATERIAL HAS BEEN PROPOSED AT A MINIMUM HEIGHT OF THREE (3) FEET AT INSTALLATION.	COMPLIES
§ 53-79.A(5)c.3	THE SCREEN PLANTING SHALL BE SO PLACED THAT AT MATURITY IT WILL NOT BE CLOSER THAN THREE (3) FEET TO ANY STREET OR PROPERTY LINE.	ALL SCREEN PLANTINGS HAVE BEEN PLACED NO CLOSER THAN THREE (3) FEET TO ANY STREET OR PROPERTY LINE.	COMPLIES
§ 53-79.A(24)a	LANDSCAPING IN PARKING AND LOADING AREAS SHALL BE SHOWN ON THE SITE PLAN. TREES SHALL BE STAGGERED AND/OR SPACED SO AS NOT TO INTERFERE WITH DRIVER VISION, HAVE BRANCHES NO LOWER THAN SIX (6) FEET AND BE PLACED AT THE RATE OF AT LEAST ONE (1) TREE FOR EVERY TWENTY (20) PARKING SPACES. ALL AREAS BETWEEN THE PARKING AREA AND BUILDING SHALL BE LANDSCAPED WITH TREES, SHRUBS AND GROUND COVER. ANY PLANTINGS WHICH DO NOT LIVE SHALL BE REPLACED WITHIN ONE (1) YEAR OR ONE (1) SEASON. A MAJORITY OF THE PARKING AREAS FOR MORE THAN FIFTY (50) CARS SHALL BE OBSCURED FROM STREETS BY BUILDINGS, LANDSCAPED BERMS, NATURAL GROUND ELEVATION OR PLANTINGS, SINGULARLY OR IN COMBINATION.	TOTAL SITE PARKING SPACES: 98 (EXCLUDING DRIVEWAY AND GARAGE SPACES) REQUIRED PARKING TREES: 98 / 20 = 5 TREES PROPOSED PARKING TREES: 34 TREES	COMPLIES
(§53-79.A(32))	ALL SHADE TREES SHALL HAVE A MINIMUM DIAMETER OF THREE INCHES AS MEASURED FOUR FEET ABOVE THE GROUND AND BE OF A SPECIES APPROVED BY THE APPROVING AUTHORITY. TREES SHALL BE PLANTED 40 TO 60 FEET APART AND PARALLEL TO BUT NO MORE THAN 20 FEET FROM THE CURBLINE AND SHALL BE BALLED AND BURLAPPED, NURSERY GROWN, FREE FROM INSECTS AND DISEASE AND TRUE TO SPECIES AND VARIETY. STRIPPING TREES FROM A LOT OR FILLING AROUND TREES ON A LOT SHALL NOT BE PERMITTED UNLESS IT CAN BE SHOWN THAT GRADING REQUIREMENTS NECESSITATE REMOVAL OF TREES, IN WHICH CASE THOSE LOTS SHALL BE REPLANTED WITH TREES TO REESTABLISH THE TONE OF THE AREA AND TO CONFORM TO ADJACENT LOTS. DEAD OR DYING TREES SHALL BE REPLACED BY THE DEVELOPER DURING THE NEXT RECOMMENDED PLANTING SEASON.	ALL SHADE TREES HAVE BEEN PROPOSED WITH A CALIPER OF THREE (3) INCHES AND HAVE APPROPRIATE SPACING TO ALLOW FOR PROPER GROWTH.	COMPLIES

PLANTING SPECIFICATIONS

1. SCOPE OF WORK
   A. THIS WORK SHALL CONSIST OF PERFORMING, CLEARING AND SOIL PREPARATION, FINISH GRADING, PLANTING AND DRAINAGE, INCLUDING ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, AND ANY OTHER APPURTENANCES NECESSARY FOR THE COMPLETION OF THIS PROJECT.
2. MATERIALS
   A. GENERAL – ALL MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION (D.O.T.) MANUAL OF ROADWAY AND BRIDGE CONSTRUCTION (LATEST EDITION) OR APPROVED EQUAL.
   B. PLANTS – ALL PLANTS SHALL BE HEALTHY OR NORMAL GROWTH, WELL ROOTED, FREE FROM DISEASE AND INSECTS.
   C. TOPSOIL – LOAMY SILT, HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, pH RANGE BETWEEN 4.5 – 7, BE FREE OF DEBRIS, ROCKS LARGER THAN TWO INCHES (2"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.
   D. MULCH – FOUR (4") INCHES DOUBLE SHREDDED HARDWOOD BARK MULCH.
3. FERTILIZER AND SOIL CONDITIONER – PLANTED AREAS
   A. ORGANIC FERTILIZER – SHALL BE PROCESSED SEWER SLUDGE WITH MINIMAL CONTENT OF 1% NITROGEN AND 2% PHOSPHORIC ACID, EQUAL TO 'NITROHUMIS'.
   B. ORGANIC FERTILIZER AND SOIL CONDITIONER – SHALL BE 'GRO- POWER' AND ORGANIC BASE MATERIALS COMPRISED OF DECOMPOSED ANIMAL AND VEGETABLE MATTER AND COMPOSTED TO SUPPORT BACTERIAL CULTURES, CONTAINING NO POULTRY OR HUMAN WASTE. GUARANTEED ANALYSIS (5-3-1): NITROGEN 5%. PHOSPHATE 3%, POTASH 1%. 50% HUMUS AND 15% HUMIC ACIDS.
4. GENERAL WORK PROCEDURES
   A. LANDSCAPE WORK SHALL COMMENCE AS SOON AS THOSE PORTIONS OF THE SITE ARE AVAILABLE. CONTRACTOR TO UTILIZE WORKMANLIKE STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH DAY'S WORK. ALL DEBRIS, MATERIALS, AND TOOLS SHALL BE PROPERLY STOCKPILED OR DISPOSED OF. ALL PAVED SURFACES SHALL BE SWEPT CLEAN AT THE END OF EACH DAYS WORK.
5. WEEDING
   A. BEFORE AND DURING PRELIMINARY GRADING AND FINISH GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
6. TOPSOILING
   A. CONTRACTOR TO PROVIDE A 4" THICK TOPSOIL LAYER IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO PRODUCE A 4" UNSETTLED THICKNESS. TOPSOIL PRESENT AT THE SITE, IF ANY, MAY BE USED TO SUPPLEMENT TOTAL AMOUNT REQUIRED. CONTRACTOR TO FURNISH AN ANALYSIS OF ON-SITE TOPSOIL UTILIZED IN ALL PLANTING AREAS. ADJUST pH AND NUTRIENT LEVELS AS REQUIRED TO ENSURE AN ACCEPTABLE GROWING MEDIUM.
7. SOIL CONDITIONING
   A. CULTIVATE ALL AREAS TO BE PLANTED TO A DEPTH OF 6". ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE. SPREAD EVENLY IN ALL PLANTING AREAS AND TILL (2 DIRECTIONS) INTO TOP 4" WITH THE FOLLOWING PER 1,000 SQ. FT.:
      20 POUNDS 'GRO-POWER'
      100 POUNDS AGRICULTURAL GYPSUM
      20 POUNDS NITROFORM (COURSE) 38-0-0 BLUE CHIP
   SOIL MODIFICATIONS:
   A. THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6 TO 12 IN. OF MOST PLANTING SOILS TO IMPROVE THE SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS. USE COMPOSTED BARK, RECYCLED YARD WASTE OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A pH HIGHER THAN 7.5.
   B. MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX. IMPROVE DRAINAGE IN HEAVY SOILS BY PLANTING ON RAISED MOUNDS OR BEDS AND INCLUDING SUBSURFACE DRAINAGE LINES.
   C. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85% SAND) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.
8. PLANTING
   POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.
   A. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACK FILLED WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:
      1 PART PEAT MOSS BY VOLUME
      1 PART COW MANURE BY VOLUME
      3 PARTS TOPSOIL BY VOLUME
      21 GRAM 'AGRIFORM' PLANTING TABLETS AS FOLLOWS:
         2 TABLETS PER 1 GAL. PLANT
         3 TABLETS PER 5 GAL. PLANT
         4 TABLETS PER 15 GAL. PLANT
         LARGER PLANTS (2) TWO TABLETS PER 1/2" DIAM. OF TRUNK CALIPER
   B. PREPARED SOIL SHALL BE TAMPED FIRMLY AT BOTTOM OF PIT. FILL PREPARED SOIL AROUND BALL OF PLANT 1/2 WAY, AND INSERT PLANT TABLETS. COMPLETE BACK FILL AND WATER THOROUGHLY.
   C. ALL PLANTS SHALL BE SET S[illegible] THE NATURAL GRADE BEFORE BEING TRANSPLANTED.
   D. PREPARE RAISED EARTH BASIN [illegible]
   E. WATER IMMEDIATELY AFTER PLANTING [illegible] NOT TO DISTURB BACK FILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED.
   F. PRUNE ALL PROPOSED TREES [illegible]
9. GROUND COVER
   A. ALL GROUND COVER AREAS S[illegible] PRIOR TO PLANTING GROUND COVER.
   B. SPACING AND VARIETY OF GR[illegible]
   C. IMMEDIATELY AFTER PLANTING [illegible]
   D. ALL GROUND COVER AREAS S[illegible] GROUND COVER AREAS SHALL BE WEEDED PRIOR TO APPLYING PRE-EMERGENT. PRE-EMERGENT TO BE APPLIED AS PER MANUFACTURER'S RECOMMENDATION.
10. FINISH GRADING
   A. ALL AREAS WILL BE RECEIVED [illegible]
   B. ALL LAWN AND PLANTING ARE[illegible] CHANGE OF SURFACE, UNLESS OTHERWISE DIRECTED BY LANDSCAPE ARCHITECT. SOIL AREAS ADJACENT TO THE BUILDINGS SHALL SLOPE AWAY.
   C. ALL PLANTING AREAS SHALL [illegible]
11. GUARANTEE
   A. CONTRACTOR SHALL GUARANT[illegible] TO SECURE A MAINTENANCE BOND FROM THE CONTRACTOR FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE COMMENCE[illegible] OWNERS REPRESENTATIVE.
12. CLEANUP
   A. UPON THE COMPLETION OF A[illegible] ALL MATERIAL, EQUIPMENT, AND DEBRIS RESULTING FROM HIS WORK. ALL PAVED AREAS SHALL BE BROOM CLEANED AND THE SITE LEFT IN A NEAT AND ACCEPTABLE CONDITION AS A[illegible]
   B. MAINTAIN TREES, SHRUBS AN[illegible] GROWTH. RESTORE PLANTING SAUCERS. TIGHTEN AND REPAIR STAKE AND GUY SUPPORTS AND RESET TREES AND SHRUBS TO PROPER GRADES OR VERTICAL POSITION AS REQUI[illegible] TO KEEP TREES AND SHRUBS FREE OF INSECTS AND DISEASE.
   C. MAINTAIN LAWNS BY WATERING [illegible], REGRADING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF ERODED OR BARE AREAS.
13. MAINTENANCE (ALTERNATE BID) [illegible]



TYPICAL FOUNDATION PLANTING: 1" = 20'

PLANTING NOTES

1. PLANT MATERIAL SHALL BE FURNISHED AND INSTALLED AS INDICATED; INCLUDING ALL LABOR, MATERIALS, PLANTS, EQUIPMENT, INCIDENTALS, AND CLEAN-UP.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PLANTING AT CORRECT GRADES AND ALIGNMENT. LAYOUT TO BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
3. PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY; HAVE NORMAL GROWTH HABITS; WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE FROM DEFECTS AND INJURIES.
4. CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL.
5. ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR TO BE IN VIGOROUS GROWING CONDITION. PROVISION SHALL BE MADE FOR A GROWTH GUARANTEE OF AT LEAST ONE (1) YEAR FROM THE DATE OF ACCEPTANCE FOR TREES AND SHRUBS. REPLACEMENTS SHALL BE MADE AT THE BEGINNING OF THE FIRST SUCCEEDING PLANTING SEASON. ALL REPLACEMENTS SHALL HAVE A GUARANTEE EQUAL TO THAT STATED ABOVE.
6. INSOFAR AS IT IS PRACTICABLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THIS IS NOT POSSIBLE, THE CONTRACTOR SHALL PROTECT STOCK NOT PLANTED. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. ANY PLANTS NOT INSTALLED DURING THIS PERIOD WILL BE REJECTED.
7. QUALITY AND SIZE OF PLANTS, SPREAD OF ROOTS, AND SIZE OF BALLS SHALL BE IN ACCORDANCE WITH ANSI Z60.1 (REV. 2001) "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
8. ALL PLANTS SHALL BE PLANTED IN AMENDED TOPSOIL THAT IS THOROUGHLY WATERED AND TAMPED AS BACK FILLING PROGRESSES. PLANTING MIX TO BE AS SHOWN ON PLANTING DETAILS. LARGE PLANTING AREAS TO INCORPORATE FERTILIZER AND SOIL CONDITIONERS AS STATED IN PLANTING SPECIFICATIONS.
9. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES. PLANTS SHALL BE HANDLED FROM THE BOTTOM OF THE BALL ONLY.
10. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION. ALL PLANT MATERIAL SHALL BE SPRAYED WITH 'WILT-PRUF' OR EQUAL AS PER MANUFACTURER'S INSTRUCTIONS.
11. NO PLANT, EXCEPT GROUND COVERS, SHALL BE PLANTED LESS THAN TWO FEET FROM EXISTING STRUCTURES AND SIDEWALKS.
12. SET ALL PLANTS PLUMB AND STRAIGHT. SET AT SUCH LEVEL THAT, A NORMAL OR NATURAL RELATIONSHIP TO THE CROWN OF THE PLANT WITH THE GROUND SURFACE WILL BE ESTABLISHED. LOCATE PLANT IN THE CENTER OF THE PIT.
13. ALL INJURED ROOTS SHALL BE PRUNED TO MAKE CLEAN ENDS BEFORE PLANTING UTILIZING CLEAN, SHARP TOOLS. IT IS ADVISABLE TO PRUNE APPROXIMATELY 1/3 OF THE GROWTH OF LARGE TREES (2" CALIPER AND OVER) BY THE REMOVAL OF SUPERFLUOUS BRANCHES, THOSE WHICH CROSS, THOSE WHICH RUN PARALLEL, ETC. MAIN LEADER OF TREES WILL NOT BE CUT BACK. LONG SIDE BRANCHES, HOWEVER, MUST BE SHORTENED.
14. EACH TREE AND SHRUB SHALL BE PRUNED IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICE TO PRESERVE NATURAL CHARACTER OF PLANT. PRUNING SHALL BE DONE WITH CLEAN, SHARP TOOLS.
15. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES AS A RESULT OF CONSTRUCTION OPERATIONS. ALL EXISTING TREES SHALL BE FERTILIZED WITH A REGULAR GARDEN FERTILIZER (5-10-5) UPON COMPLETION OF WORK. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE TRUNK. CONTRACTOR TO ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH SHARP TOOLS AND FILLED AROUND WITH TOPSOIL. COMPLETELY SATURATE THESE AREAS WITH WATER. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR IS TO PROTECT ALL EXISTING TREES TO REMAIN BY ERECTING TREE PROTECTION FENCE AT THE DRIP LINE. THIS WILL ENSURE NO COMPACTION OF THE ROOT MASS.
16. ALL PLANTING BEDS SHALL BE MULCHED WITH 4" LAYER OF DOUBLE SHREDDED HARDWOOD BARK MULCH.
17. NEW PLANTING AREAS AND SOD SHALL BE ADEQUATELY IRRIGATED OR WATERED TO ESTABLISH THE PROPOSED PLANTS AND LAWN.
18. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE AS SHOWN ON THE APPROVED LANDSCAPE PLAN MUST BE INSTALLED, INSPECTED AND APPROVED BY THE MUNICIPAL LANDSCAPE ARCHITECT. THE MUNICIPAL ENGINEER AND LANDSCAPE ARCHITECT SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS. THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER AS REQUIRED BY OR ASSOCIATED WITH A SUBDIVISION OR SITE PLAN APPROVAL BY THE PLANNING BOARD OR ZONING BOARD OF ADJUSTMENT SHALL BE INSTALLED DURING THE FOLLOWING PLANTING SEASONS:

TYPE	DATES
PLANTS	3/15 TO 12/15
LAWN	3/15 TO 6/15
	9/15 TO 12/1

FURTHERMORE, THE FOLLOWING TREE VARIETIES SHALL NOT BE PLANTED DURING THE FALL PLANTING SEASON DUE TO THE HAZARDS ASSOCIATED WITH DIGGING THESE TREES IN THIS SEASON.

ACER RUBRUM
BETULA VARIETIES
CARPINUS VARIETIES
CRATAEGUS VARIETIES
KOELREUTERIA
LIQUIDAMBAR STYRACIFLUA
LIRIODENDRON TULIPIFERA
PLATANUS ACERIFOLIA

POPULUS VARIETIES
PRUNUS VARIETIES
PYRUS VARIETIES
QUERCUS VARIETIES
SALIX WEEPING VARIETIES
TILIA TOMENTOSA
ZELKOVA VARIETIES

ANY PLANTINGS INSTALLED IN CONFLICT WITH THIS REQUIREMENT MUST RECEIVE THE WRITTEN APPROVAL BY THE MUNICIPAL ENGINEER OR LANDSCAPE ARCHITECT, PRIOR TO PLANTING. FAILURE TO COMPLY WITH THESE REQUIREMENTS WILL REQUIRE THE REMOVAL OF THE PLANTING IN QUESTION. THIS REQUIREMENT DOES NOT APPLY TO SEEDING OR SODDING OR PLANTINGS SPECIFICALLY FOR SOIL STABILIZATION PURPOSES. THE PLANTING ASSOCIATED WITH ANY LOT GIVEN A CERTIFICATE OF OCCUPANCY OUTSIDE THESE PERIODS SHALL BE PROVIDED DURING THE PREVIOUS OR NEXT APPROPRIATE SEASON.

19. ALL DISTURBED AREAS TO BE TREATED WITH TOPSOIL SEED SOD STABILIZATION METHOD.

LANDSCAPE SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
SHADE TREE(S)					
LSR	12	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'	SEEDLESS SWEETGUM	3-3 1/2" CAL.	B+B
NS	10	NYSSA SYLVATICA	SOURGUM OR TUPELO	3-3 1/2" CAL.	B+B
QA	5	QUERCUS ALBA	WHITE OAK	3-3 1/2" CAL.	B+B
	27				
ORNAMENTAL TREE(S)					
AC	6	AMELANCHIER CANADENSIS	MULTI STEM SHADBLOW SERVICEBERRY	8-10'	B+B
CC	5	CERCIS CANADENSIS	EASTERN REDBUD	8-10'	B+B
MV	18	MAGNOLIA VIRGINIANA	SWEETBAY MAGNOLIA	8-10'	B+B
	29				
EVERGREEN TREE(S)					
IOS	13	ILEX OPACA 'SATYR HILL'	SATYR HILL HOLLY	6-8'	B+B
JVB	34	JUNIPERUS VIRGINIANA 'BURKII'	BURKII RED CEDAR	6-8'	B+B
PVV	1	PINUS VIRGINIANA	VIRGINIA PINE	6-8'	B+B
	48				
EVERGREEN SHRUB(S)					
CBSO	11	SYMPHORICARPOS ORBICULATUS	CORAL BERRY	24-30"	#5 CAN
IGS	75	ILEX GLABRA 'SHAMROCK'	SHAMROCK INKBERRY HOLLY	36-42"	#7 CAN
	86				
DECIDUOUS SHRUB(S)					
AAB	15	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	RED CHOKEBERRY	36-42"	#7 CAN
CA	94	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	36-42"	#7 CAN
CSAS	80	CEANOTHUS AMERICANUS	NEW JERSEY TEA	24-30"	#5 CAN
HAA	10	HYDRANGEA ABORESCENS 'ANNABELLE'	'ANABELLE' HYDRANGEA	24-30"	#5 CAN
MP	36	MYRICA PENSYLVANICA	NORTHERN BAYBERRY	36-42"	#7 CAN
PMA	11	PRUNUS MARITIMA	BEACH PLUM	30-36"	#7 CAN
VC	25	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	36-42"	#7 CAN
VDGG	9	VIBURNUM DENTATUM VAR. DEAMII	GLITTERS & GLOWS ARROWWOOD VIBURNUM	30-36"	#7 CAN
VDM	16	VIBURNUM DENTATUM 'MORTON'	NORTHERN BURGUNDY ARROWWOOD VIBURNUM	36-42"	#7 CAN
VTC	20	VIBURNUM TRILOBUM 'COMPACTUM'	COMPACT AMERICAN CRANBERRYBUSH	24-30"	#5 CAN
	316				
PERENNIAL(S)					
EP	40	ECHINACEA PURPUREA	PURPLE CONEFLOWER	2 GAL.	CONTAINER
ORNAMENTAL GRASS(ES)					
CLA	50	CHASMANTHIUM LATIFOLIUM	NORTHERN SEA OATS	2 GAL.	CONTAINER
PVCB	62	PANICUM VIRGATUM 'CAPE BREEZE'	CAPE BREEZE SWITCH GRASS	2 GAL.	CONTAINER
PVCN	56	PANICUM VIRGATUM 'CLOUD NINE'	CLOUD NINE SWITCH GRASS	2 GAL.	CONTAINER
	168				

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.

TYPICAL FOUNDATION SCHEDULE

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
EVERGREEN SHRUB(S)					
KA	4	KALMIA ANGUSTIFOLIA	SHEEP LAUREL	18-24"	#3 CAN
DECIDUOUS SHRUB(S)					
CA	6	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	24-30"	#3 CAN
CSAS	6	CEANOTHUS AMERICANUS	NEW JERSEY TEA	24-30"	#3 CAN
	12				
PERENNIAL(S)					
EP	5	ECHINACEA PURPUREA	PURPLE CONEFLOWER	2 GAL.	CONTAINER
Y	4	ACHILLEA SPECIES	YARROW	2 GAL.	CONTAINER
	9				
ORNAMENTAL GRASS(ES)					
PVCB	15	PANICUM VIRGATUM 'CAPE BREEZE'	CAPE BREEZE SWITCH GRASS	2 GAL.	CONTAINER

NOTE: IF ANY DISCREPANCIES OCCUR BETWEEN AMOUNTS SHOWN IN THE PLAN AND THE PLANT LIST, THE PLAN SHALL DICTATE.

1" INCH = 30 FT.

TREE LIMBS AND PLANTINGS SHALL BE TRIMMED TO PROVIDE CLEAR SIGHT DISTANCES BETWEEN TWO FEET AND TEN FEET MEASURED FROM GROUND SURFACE.

SEE LANDSCAPE ARCHITECT PLANS FOR TIDAL MARSH AND WATERFRONT PLANTING SCHEDULE AND DETAILS

SEE SHEET 27 OF 30 FOR LANDSCAPE PLAN DETAILS

Plotted: 11/04/25 – 10:29 AM, By: gzelinack, – Product Ver: 25.0
File: \\decpc.local\decfolders\data\DECPC PROJECTS\3184 March Development LLC\99-001 South Amboy\Dwg\Site Plans – Residential\D31849900115.0.dwg ----> 19 OVERALL LANDSCAPE PLAN

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F: 732.974.3521
www.dynamicec.com

TITLE:
OVERALL LANDSCAPE PLAN

PROJECT:
MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No: 3184-99-001
DATE: 10/13/2025
DRAWN BY: TNH
DESIGNED BY: MDC
CHECKED BY: TJM/DMH
CHECKED BY: –
SCALE: (H) 1"=50'
(V) –
SHEET No: 19 OF 30
Rev. # 0

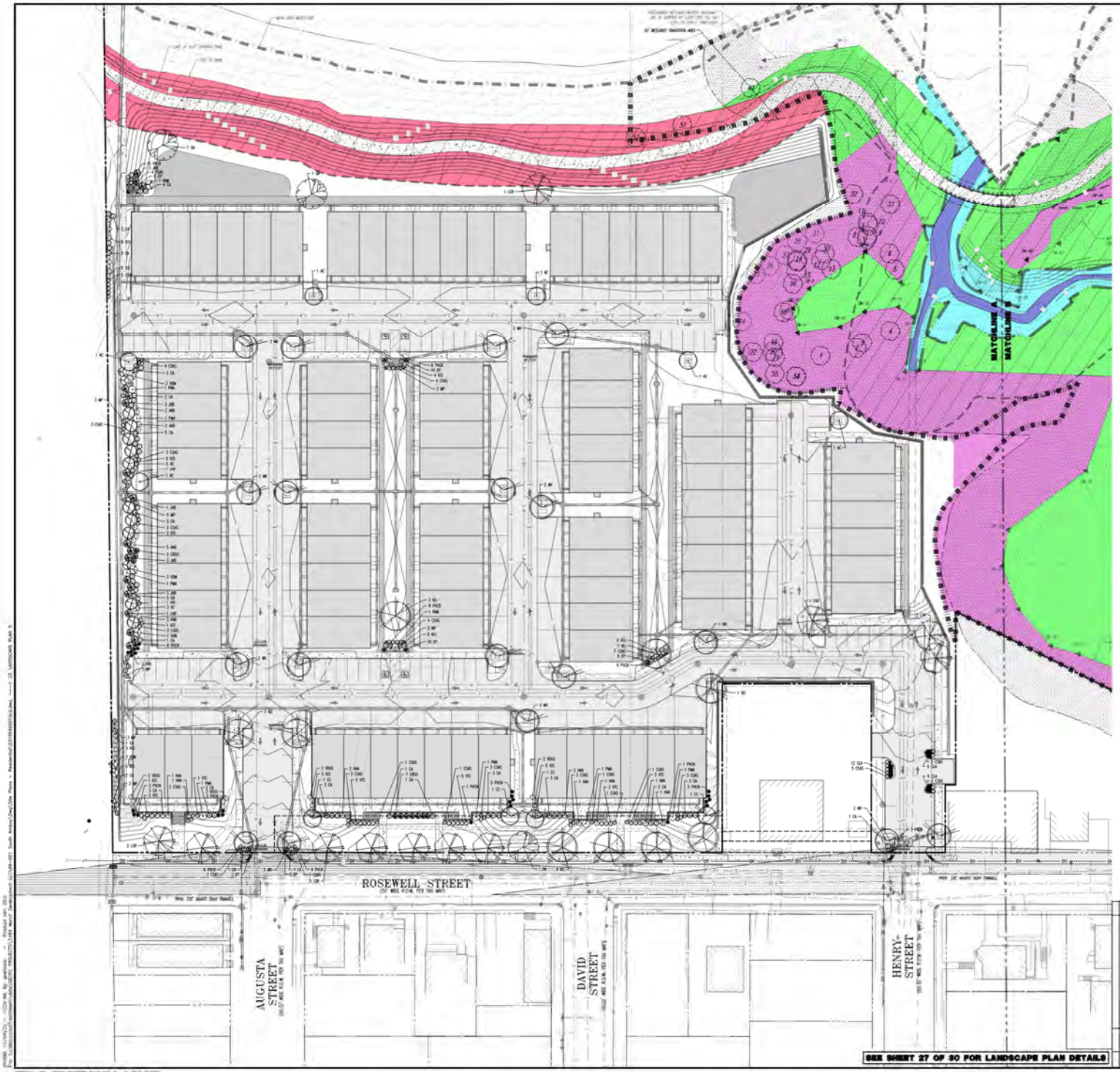
THOM
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 52179

LEY JR
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 56564

DRAFT

811 PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
Know what's below. Call before you dig.
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY



SEE SHEET 27 OF 30 FOR LANDSCAPE PLAN DETAILS

GRAPHIC SCALE

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DYNAMIC ENGINEERING

LAND DEVELOPMENT CONSULTING • PERMITTING • SURVEYING • ENVIRONMENTAL • SUPPORT • PLANNING & ZONING

TITLE: LANDSCAPE PLAN A

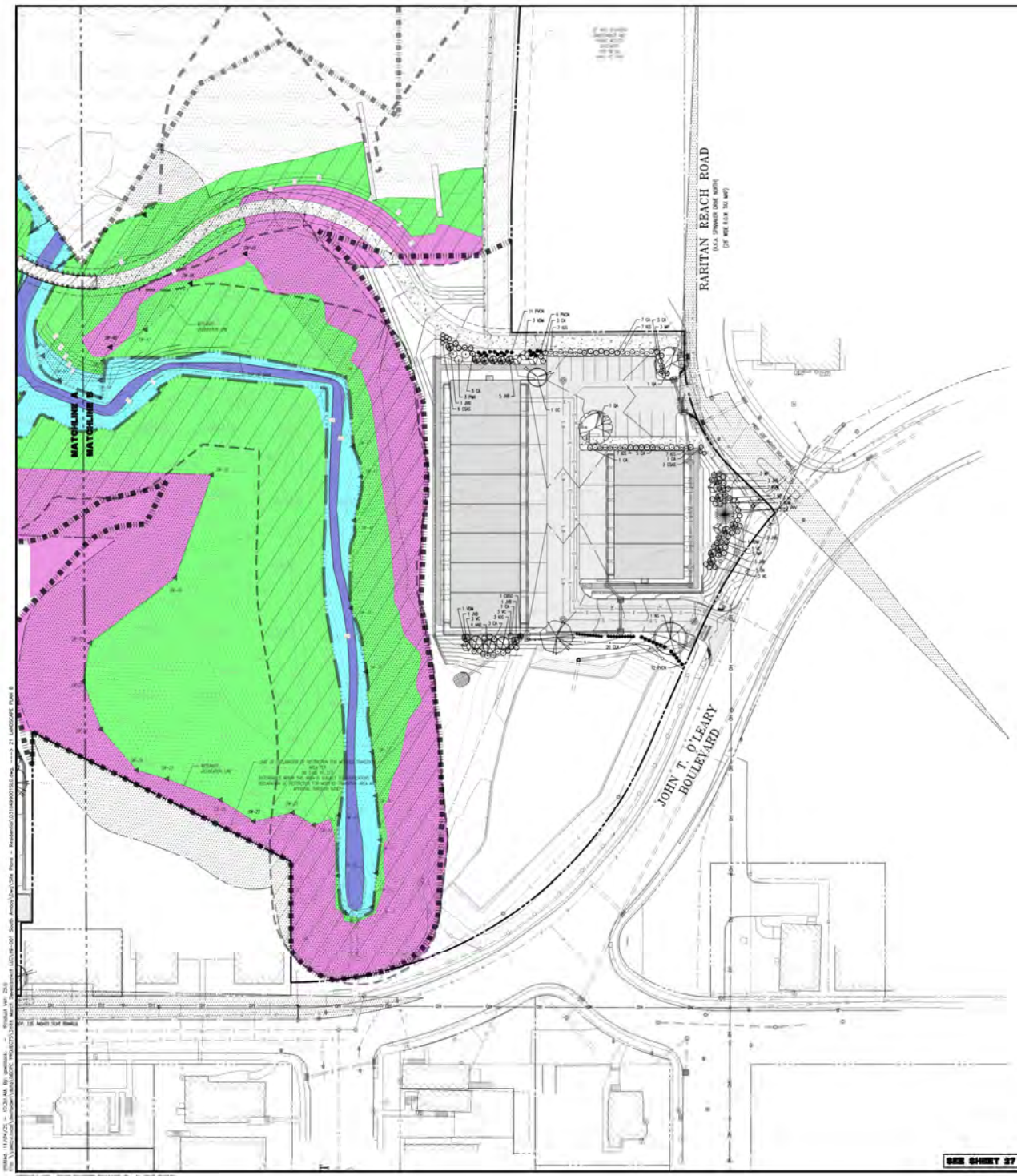
PROJECT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 167.03, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No. 3166-99-001 | DATE 10/13/2025
DRAWN BY: TMH | SCALE 1" = 30'
SURVEYED BY: MDC | SHEET No. 20
CHECKED BY: RJ/DMH | OF 30
DATUM BY: —

THOMAS J. DRAFT LEY JR
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 53173

THOMAS J. HANDLEY
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 24GE04

THIS PLAN TO BE UTILIZED FOR LANDSCAPE PURPOSES ONLY



SEE SHEET 27 OF 30 FOR LANDSCAPE PLAN DETAILS

GRAPHIC SCALE

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DYNAMIC ENGINEERING

LAND DEVELOPMENT CONSULTING • PERMITTING • SURVEYING • ENVIRONMENTAL • SUPPORT • PLANNING & ZONING

TITLE: LANDSCAPE PLAN B

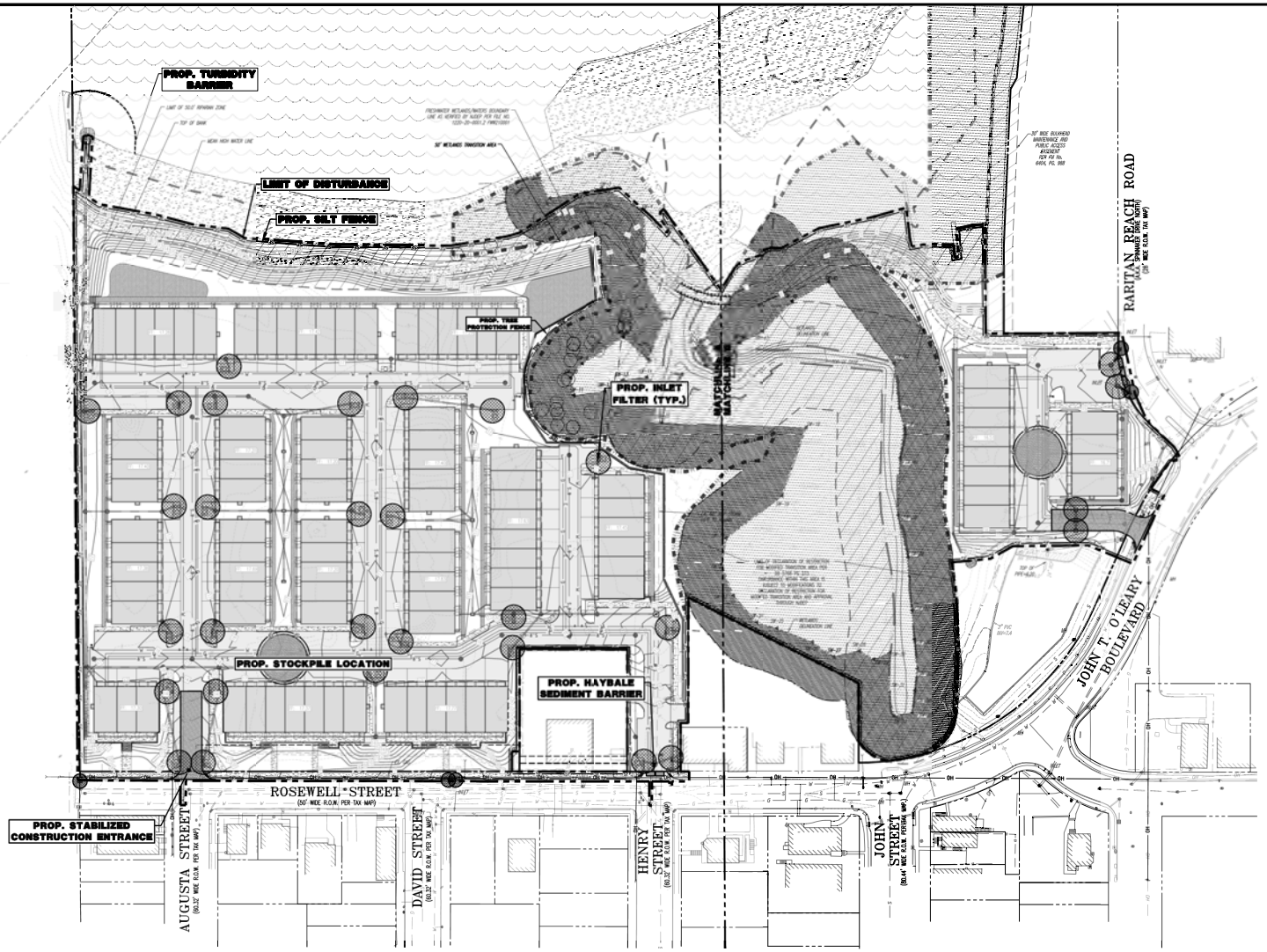
PROJECT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 167.03, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No. 3166-99-001
DATE 10/13/2025
DRAWN BY: TMH
SCALE 1"=30'
DESIGNED BY: MDC
CHECKED BY: TJM/DMH
CHECKED BY:
SHEET No. 21 OF 30

THOM DRAFT LEY JR
PROFESSIONAL ENGINEER
PROFESSIONAL ENGINEER

MASTER'S SIGNATURE

THIS PLAN TO BE UTILIZED FOR SOIL EROSION & SEDIMENT CONTROL PURPOSES ONLY



KEY MAP
1" = 500'

SEE SHEET 25 OF 30 FOR SOIL EROSION NOTES & DETAILS

LIMIT OF DISTURBANCE = 625,621 SF. (14.37 Ac.)

EROSION CONTROL LEGEND

PROP. LIMIT OF DISTURBANCE LINE
PROP. SILT FENCE LINE
PROP. TREE PROTECTION FENCE LINE
PROP. INLET FILTER
PROP. HAYBALE SEDIMENT BARRIER

GRAPHIC SCALE
-50 0 25 50 100 200
(IN FEET)
1 INCH = 50 FT.

SET IS FOR PERMITTING PURPOSES ONLY AND MAY NOT BE USED FOR CONSTRUCTION

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TITLE: OVERALL SOIL EROSION AND SEDIMENT CONTROL PLAN

PROJECT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No: 3184-99-001	DATE: 10/13/2025
DRAWN BY: GMZ	SCALE: AS SHOWN
DESIGNED BY: MDC	SHEET No: 22
CHECKED BY: TJM/DMH	of 30
CHECKED BY: –	Rev. # 0

THOMAS J. MANAHAN, JR. — PROFESSIONAL ENGINEER — NEW JERSEY LICENSE No. 56564
DRAFT
DAVID M. HOLLEY — PROFESSIONAL ENGINEER — NEW JERSEY LICENSE No. 52179

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TO SEE WHO SPOILS DON'T MAKE NUMBERS VISIT: WWW.CALLNJ1.COM

Plotted: 11/04/25 – 10:29 AM By: gmercado
File: L:\Projects\3184\99-001\PROJECTS\1 MB Resub Development LLC\99-001 South Amboy\Dwg\Site Plans – Residential\3184990010SD.dwg, ----> 22 OVERALL SOIL EROSION AND SEDIMENT CONTROL PLAN
Product: Ver. 25.0

THIS PLAN TO BE UTILIZED FOR SOIL EROSION & SEDIMENT CONTROL PURPOSES ONLY

LIMIT OF DISTURBANCE

PROP. SILT FENCE

PROP. TREE PROTECTION FENCE

PROP. INLET FILTER (TYP.)

MATCHLINE A

MATCHLINE B

PROP. STOCKPILE LOCATION

PROP. HAYBALE SEDIMENT BARRIER

PROP. STABILIZED CONSTRUCTION ENTRANCE

ROSEWELL STREET

AUGUSTA STREET

DAVID STREET

HENRY STREET

KEY MAP
1" = 500'

SEE SHEET 25 OF 30 FOR SOIL EROSION NOTES & DETAILS

LIMIT OF DISTURBANCE = 625,881 SF. (14.37 Ac.)

EROSION CONTROL LEGEND

PROP. LIMIT OF DISTURBANCE LINE
PROP. SILT FENCE LINE
PROP. TREE PROTECTION FENCE LINE
PROP. INLET FILTER
PROP. HAYBALE SEDIMENT BARRIER

GRAPHIC SCALE
(IN FEET)
1 INCH = 30 FT

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TITLE
SOIL EROSION AND SEDIMENT CONTROL PLAN A

PROJECT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 169.03, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No. 3186-99-001
DRAWN BY: GMZ
DESIGNED BY: MDC
CHECKED BY: JM/DMH
DATE: 10/13/2025
SCALE: 1" = 50'
SHEET No. 23 OF 30

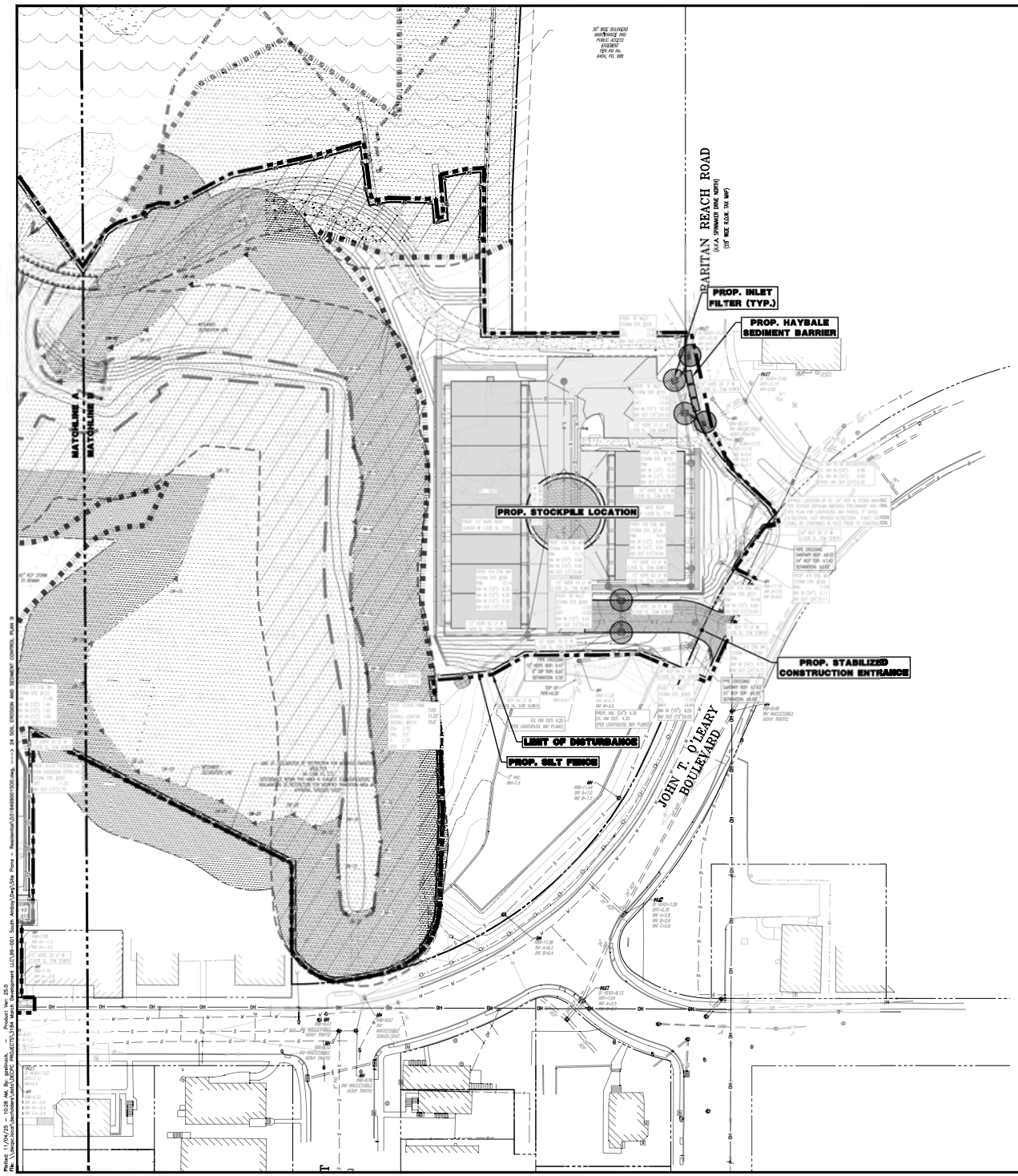
THOMAS MANGELS
LICENSED PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 52473
NOT VALID UNLESS SIGNED AND SEALED

THOMAS DRAFT LEY JR
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 52473

PROFESSIONAL ENGINEER
NEW JERSEY LICENSE NO. 52584

PRINTED: 10/13/2025 - 10:29 AM By: gmercado
X:\Projects\3186-99-001\CAD\Site\Plans - Residential\3186990001SOIL Plans - 23 SOIL EROSION AND SEDIMENT CONTROL PLAN A

THIS PLAN TO BE UTILIZED FOR SOIL EROSION & SEDIMENT CONTROL PURPOSES ONLY



KEY MAP
1" = 500'

SEE SHEET 25 OF 30 FOR SOIL EROSION NOTES & DETAILS

LIMIT OF DISTURBANCE = 625,621 SF. (14.27 Ac.)

EROSION CONTROL LEGEND

PROP. LIMIT OF DISTURBANCE LINE
PROP. SILT FENCE LINE
PROP. TREE PROTECTION FENCE LINE
PROP. INLET FILTER
PROP. HAYBALE SEDIMENT BARRIER

GRAPHIC SCALE
(IN FEET)
1 INCH = 30 FT.

NOT TO BE FOR PERMITTING PURPOSES ONLY AND MAY NOT BE USED FOR CONSTRUCTION

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TITLE: SOIL EROSION AND SEDIMENT CONTROL PLAN B

PROJECT: MANHATTAN BEACH PHASE 1 URBAN RENEWAL, LLC
PROPOSED TOWNHOUSE DEVELOPMENT
BLOCK 161.02, LOTS 20, 23, 24 & 24.01
ROSEWELL STREET
CITY OF SOUTH AMBOY, MIDDLESEX COUNTY, NEW JERSEY

JOB No.: 3184-99-001
DATE: 10/13/2025
DRAWN BY: GMZ
SCALE: 1" = 30'
DESIGNED BY: MDC
CHECKED BY: TJM/DMH
CHECKED BY: –
SHEET No.: 24 of 30
Rev. # 0

THOMAS J. MALEY JR
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 56564

DRAFT

SIGNAL ENGINEER
LICENSE No. 52179

PROTECT YOURSELF
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MAINTENANCE WORK ORDER & CHECKLIST

MAINTENANCE WORK ORDER AND CHECKLIST
FOR STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY: _____
LOCATION: _____ DATE: _____
WEATHER: _____ WORK STARTED: _____
MAINTENANCE PERFORMED BY: _____ WORK COMPLETED: _____

A. PREVENTATIVE MAINTENANCE			
WORK ITEMS	**ITEMS REQUIRED**	**ITEMS DONE**	**COMMENTS AND SPECIAL INSTRUCTIONS**
1. GRASS CUTTING			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. OTHERS			
2. GRASS MAINTENANCE			
A. FERTILIZING			
B. RE-SEEDING			
C. DE-THATCHING			
D. PEST CONTROL			
E. OTHERS			
3. VEGETATIVE COVER			
A. FERTILIZING			
B. PRUNING			
C. PEST CONTROL			
D. POISONOUS PLANTS			
E. OTHERS			
4. TRASH AND DEBRIS REMOVAL			
A. BOTTOMS			
B. EMBANKMENTS AND SIDE SLOPES			
C. PERIMETER AREAS			
D. ACCESS AREAS AND ROADS			
E. INLETS			
F. OUTLETS AND TRASH RACKS			
G. OTHERS			
5. SEDIMENT REMOVAL			
A. INLETS			
B. OUTLETS AND TRASH RACKS			
C. LOW FLOW CHANNELS			
D. BOTTOMS			
E. OTHERS			
6. PEST CONTROL			
A. GEESE			
B. MOSQUITO BREEDING			
C. RODENTS / RODENT HOLES			
D. OTHERS			
7. STRUCTURAL REPAIRS			
A. VALVES			
B. SLUICE GATES			
C. PUMPS			
D. FENCE GATES			
E. LOCKS			
F. ACCESS HATCHES			
G. OTHER:			
8. POND MAINTENANCE			
A. AERATION EQUIPMENT			
B. DEBRIS AND TRASH REMOVAL			
C. WEED REMOVAL			
D. OTHER:			
9. OTHER PREVENTIVE MAINTENANCE			
A. PARKING LOT SWEEPING			
B. EMPTYING TRASH RECEPTACLES			
C. PUMPS AND VALVES			
D. ELECTRICAL PANEL AND WIRING			
E. DEWATERING			
F. GRAFFITI REMOVAL			
E. OTHER:			

B. CORRECTIVE MAINTENANCE			
WORK ITEMS	**ITEMS REQUIRED**	**ITEMS DONE**	**COMMENTS AND SPECIAL INSTRUCTIONS**
1. REMOVAL OF DEBRIS AND SEDIMENT			
2. STRUCTURAL REPAIRS			
3. EMBANKMENTS AND SIDE SLOPES			
4. DEWATERING			
5. BASIN MAINTENANCE			
6. CONTROL OF MOSQUITOES			
7. EROSION REPAIR			
8. FENCE REPAIR			
9. SNOW AND ICE REMOVAL			
10. SAND LAYER REPLACEMENT			
11. OTHER			

C. AESTHETIC MAINTENANCE			
WORK ITEMS	**ITEMS REQUIRED**	**ITEMS DONE**	**COMMENTS AND SPECIAL INSTRUCTIONS**
1. GRAFFITI REMOVAL			
2. GRASS TRIMMING			
3. WEEDING			
4. OTHERS			

GENERAL NOTES AND REMARKS:

WORK ORDER PREPARED BY: _____

WORK COMPLETED BY: _____

MAINTENANCE LOG

MAINTENANCE LOG
FOR
STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY: _____
LOCATION: _____

DATE:

A. PREVENTATIVE MAINTENANCE										
WORK ITEM	**(√) COMPLETED**									
1. GRASS CUTTING										
A. BOTTOMS										
B. EMBANKMENTS AND SIDE SLOPES										
C. PERIMETER AREAS										
D. ACCESS AREAS AND ROADS										
E. OTHERS										
2. GRASS MAINTENANCE										
A. FERTILIZING										
B. RE-SEEDING										
C. DE-THATCHING										
D. PEST CONTROL										
E. OTHERS										
3. VEGETATIVE COVER										
A. FERTILIZING										
B. PRUNING										
C. PEST CONTROL										
D. POISONOUS PLANTS										
E. OTHERS										
4. TRASH AND DEBRIS REMOVAL										
A. BOTTOMS										
B. EMBANKMENTS AND SIDE SLOPES										
C. PERIMETER AREAS										
D. ACCESS AREAS AND ROADS										
E. INLETS										
F. OUTLETS AND TRASH RACKS										
G. OTHERS										
5. SEDIMENT REMOVAL										
A. INLETS										
B. OUTLETS AND TRASH RACKS										
C. LOW FLOW CHANNELS										
D. BOTTOMS										
E. OTHERS										
6. PEST CONTROL										
A. GEESE										
B. MOSQUITO BREEDING										
C. RODENTS / RODENT HOLES										
D. OTHER:										
7. MECHANICAL COMPONENTS										
A. VALVES										
B. SLUICE GATES										
C. PUMPS										
D. FENCE GATES										
E. LOCKS										
F. ACCESS HATCHES										
G. OTHER:										
8. POND MAINTENANCE										
A. AERATION EQUIPMENT										
B. DEBRIS AND TRASH REMOVAL										
C. WEED REMOVAL										
D. OTHER:										
9. OTHER PREVENTIVE MAINTENANCE										
A. PARKING LOT SWEEPING										
B. EMPTYING TRASH RECEPTACLES										
C. PUMPS AND VALVES										
D. ELECTRICAL PANEL AND WIRING										
E. DEWATERING										
F. GRAFFITI REMOVAL										
E. OTHER:										

B. CORRECTIVE MAINTENANCE										
WORK ITEM	**(√) COMPLETED**									
1. REMOVAL OF DEBRIS AND SEDIMENT										
2. STRUCTURAL REPAIRS										
3. EMBANKMENTS AND SIDE SLOPES										
4. DEWATERING										
5. BASIN MAINTENANCE										
6. CONTROL OF MOSQUITOES										
7. EROSION REPAIR										
8. FENCE REPAIR										
9. SNOW AND ICE REMOVAL										
10. SAND LAYER REPLACEMENT										
11. OTHER										

C. AESTHETIC MAINTENANCE										
FACILITY ITEM	**(√) COMPLETED**									
1. GRAFFITI REMOVAL										
2. GRASS TRIMMING										
3. WEEDING										
4. OTHERS										

GENERAL NOTES AND REMARKS (REFER TO ITEM NUMBER IF APPLICABLE)

INSPECTION LOG

INSPECTION LOG
FOR
STORMWATER MANAGEMENT FACILITIES

NAME OF FACILITY: _____
LOCATION: _____

DATE:

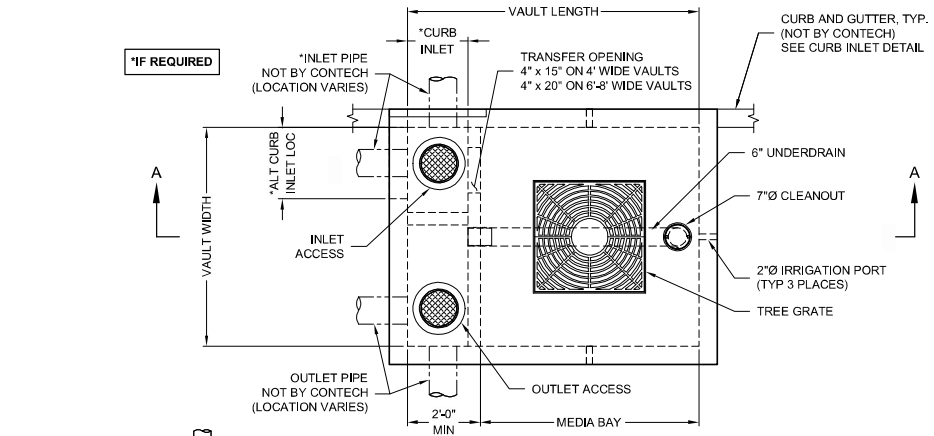
FACILITY ITEM	INDICATE CONDITION (i.e 1, 2 OR 3)									
1. EMBANKMENTS AND SIDE SLOPES										
A. VEGETATION										
B. LININGS										
C. EROSION										
D. SETTLEMENT										
E. SLOUGHING										
F. TRASH AND DEBRIS										
G. SEEPAGE										
H. AESTHETICS										
I. OTHER:										
2. BOTTOMS (DETENTION AND INFILTRATION)										
A. VEGETATION										
B. EROSION										
C. STANDING WATER										
D. SETTLEMENT										
E. TRASH AND DEBRIS										
F. SEDIMENT										
G. AESTHETICS										
H. OTHER:										
3. LOW FLOW CHANNELS (DETENTION)										
A. VEGETATION										
B. LININGS										
C. EROSION										
D. SETTLEMENT										
E. STANDING WATER										
F. TRASH AND DEBRIS										
G. SEDIMENT										
H. OTHER:										
4. PONDS (RETENTION)										
A. VEGETATION										
B. SHORELINE EROSION										
C. AERATION EQUIPMENT										
D. TRASH AND DEBRIS										
E. SEDIMENT										
F. WATER QUALITY										
G. OTHER:										
5. INLET STRUCTURE										
A. CONDITION OF STRUCTURE										
B. EROSION										
C. TRASH AND DEBRIS										
D. SEDIMENT										
E. AESTHETICS										
F. OTHER:										
6. OUTLET STRUCTURE										
A. CONDITION OF STRUCTURE										
B. EROSION										
C. TRASH AND DEBRIS										
D. SEDIMENT										
E. MECHANICAL COMPONENTS										
F. AESTHETICS										
G. OTHER:										

7. EMERGENCY SPILLWAY										
A. VEGETATION										
B. LINING										
C. EROSION										
D. TRASH AND DEBRIS										
E. OTHER:										
8. PERIMETER										
A. VEGETATION										
B. EROSION										
C. TRASH AND DEBRIS										
D. FENCES AND GATES										
E. AESTHETICS										
G. OTHER:										
9. ACCESS ROADS										
A. VEGETATION										
B. ROAD SURFACE										
C. FENCES AND GATES										
D. EROSION										
E. AESTHETICS										
F. OTHER:										
10. MISCELLANEOUS										
A. EFFECTIVENESS OF EXIST. MAINT. PROGRAM										
B. DAM INSPECTIONS										
C. POTENTIAL MOSQUITO HABITATS										
D. MOSQUITOES										

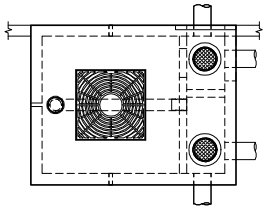
(1) ITEM CHECKED IS IN GOOD CONDITION, AND THE MAINTENANCE PROGRAM IS ADEQUATE.
(2) ITEM CHECKED REQUIRES ATTENTION, BUT DOES NOT PRESENT AN IMMEDIATE THREAT FUNCTION OR OTHER FACILITY COMPONENTS.
(3) THE ITEM CHECKED REQUIRES IMMEDIATE ATTENTION TO KEEP THE FACILITY DAMAGE TO OTHER FACILITY COMPONENTS.
(4) PROVIDE EXPLANATION AND DETAILS IF COLUMNS 2 OR 3 ARE CHECKED.

GENERAL NOTES AND REMARKS (REFER TO ITEM NUMBER IF APPLICABLE)

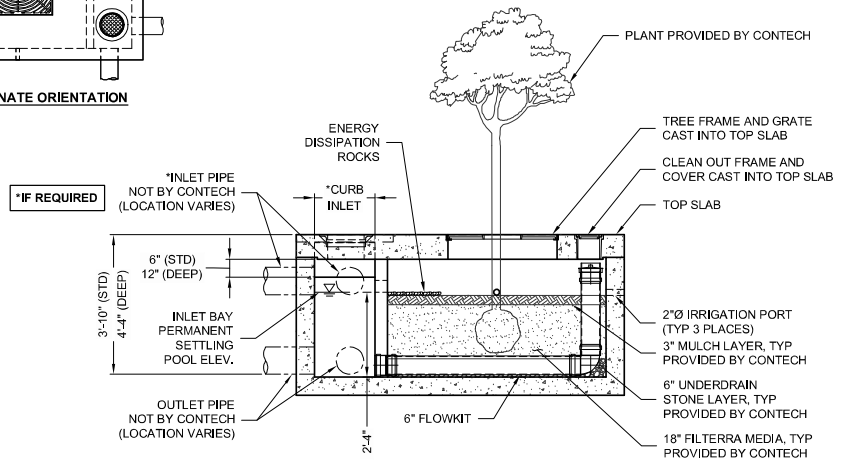
CONTECH FILTERRA HC PEAK DIVERSION SCHEMATIC DETAILS



PLAN VIEW



ALTERNATE ORIENTATION



SECTION A-A
(STANDARD DEPTH SHOWN)

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION.

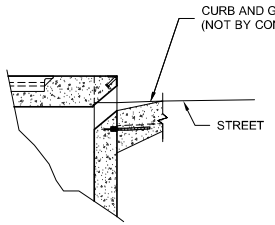
FTPD-HC STANDARD HEIGHT CONFIGURATION

DESIGNATION (OPTIONS: -P, -T, -PT)	DESIGNATION (OPTIONS: -P, -T, -PT)	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX CURB OPENING	*MAX BYPASS FLOW (CFS)	INLET/ OUTLET ACCESS DIA	TREE GRATE QTY & SIZE
FTPD0404-HC	ALL	4 x 4	4 x 6	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD0406-HC	N/A DE, MD, NJ, PA, VA, WV	4 x 6	4 x 8	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD045058-HC	DE, MD, NJ, PA, VA, WV ONLY	4.5 x 5.83	4.5 x 7.83	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD0604-HC	ALL	6 x 4	6 x 6	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD0606-HC	ALL	6 x 6	6 x 8	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD0608-HC	ALL	6 x 8	6 x 10	1'-8"	1.4	12"/12"	(1) 4' x 4'
FTPD0610-HC	ALL	6 x 10	6 x 12	1'-8"	1.4	12"/12"	(1) 4' x 4'
FTPD0710-HC	ALL	7 x 10	7 x 13	2'-6"	2.1	24"/24"	(1) 4' x 4'
FTPD08105-HC	ALL	8 x 10.5	8 x 14	3'-0"	2.5	24"/24"	(1) 4' x 4'
FTPD08125-HC	N/A OR, WA	8 x 12.5	8 x 16	3'-0"	2.5	24"/24"	(2) 4' x 4'
FTPD09115-HC	OR, WA ONLY	9 x 11.5	9 x 15	3'-0"	2.5	24"/24"	(2) 4' x 4'
N/A = NOT AVAILABLE							

FTPD-D-HC DEEP OPTION CONFIGURATION

DESIGNATION (OPTIONS: -P, -T, -PT)	AVAILABILITY	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX CURB OPENING	*MAX BYPASS FLOW (CFS)	INLET/ OUTLET ACCESS DIA	TREE GRATE QTY & SIZE
FTPD0404-D-HC	ALL	4 x 4	4 x 6	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD0406-D-HC	N/A DE, MD, NJ, PA, VA, WV	4 x 6	4 x 8	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD045058-D-HC	DE, MD, NJ, PA, VA, WV ONLY	4.5 x 5.83	4.5 x 7.83	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD0604-D-HC	ALL	6 x 4	6 x 6	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD0606-D-HC	ALL	6 x 6	6 x 8	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD0608-D-HC	ALL	6 x 8	6 x 10	1'-8"	4.6	12"/12"	(1) 4' x 4'
FTPD0610-D-HC	ALL	6 x 10	6 x 12	1'-8"	4.6	12"/12"	(1) 4' x 4'
FTPD0710-D-HC	ALL	7 x 10	7 x 13	2'-6"	6.8	24"/24"	(1) 4' x 4'
FTPD08105-D-HC	ALL	8 x 10.5	8 x 14	3'-0"	8.2	24"/24"	(1) 4' x 4'
FTPD08125-D-HC	N/A OR, WA	8 x 12.5	8 x 16	3'-0"	8.2	24"/24"	(2) 4' x 4'
FTPD09115-D-HC	OR, WA ONLY	9 x 11.5	9 x 15	3'-0"	2.5	24"/24"	(2) 4' x 4'
N/A = NOT AVAILABLE							

*MAX BYPASS FLOW IS INTERNAL WEIR FLOW. SITE SPECIFIC ANALYSIS IS REQUIRED TO DETERMINE CURB INLET FLOW CAPACITY

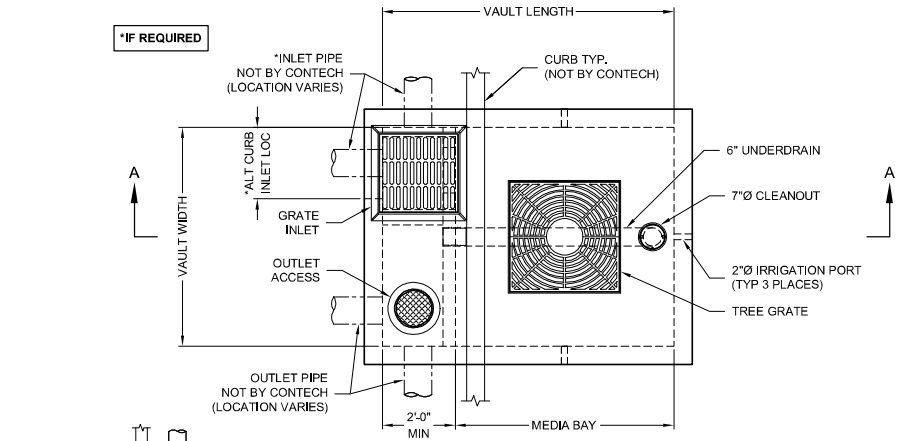


CURB INLET DETAIL

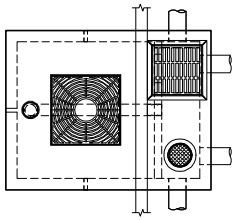
filterra®
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 8,277,274; 8,568,591; 7,820,439; 7,425,261; 7,533,412; RELATED FOREIGN PATENTS.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

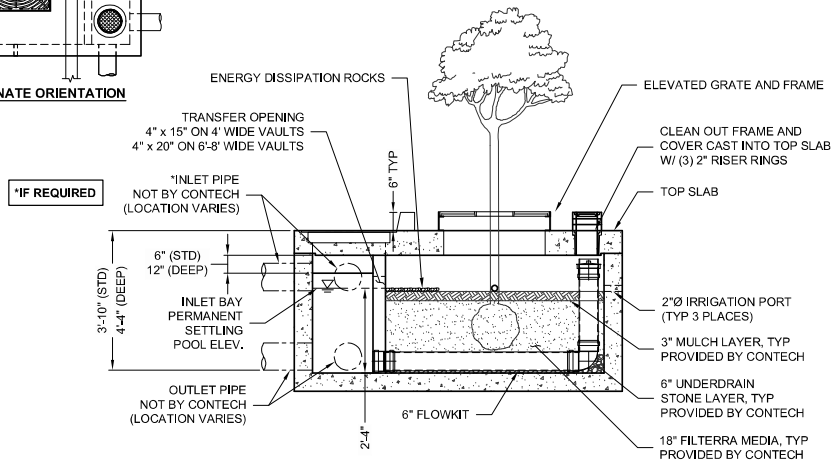
FILTERRA HC PEAK DIVERSION (FTPD-HC) CONFIGURATION DETAIL



PLAN VIEW



ALTERNATE ORIENTATION



SECTION A-A
(STANDARD DEPTH SHOWN)

INTERNAL PIPE CONFIGURATION MAY VARY
DEPENDING UPON OUTLET LOCATION.

FTPD-G-HC STANDARD HEIGHT CONFIGURATION

DESIGNATION (OPTIONS: -P)	AVAILABILITY	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX CURB OPENING	*MAX BYPASS FLOW (CFS)	GRATE INLET/ OUTLET ACCESS SIZE	TREE GRATE QTY & SIZE
FTPD0404-G-HC	ALL	4 x 4	4 x 6	1'-8"	1.4	12"SQ/12"Ø	(1) 3' x 3'
FTPD0406-G-HC	N/A DE, MD, NJ, PA, VA, WV	4 x 6	4 x 8	1'-8"	1.4	12"SQ/12"Ø	(1) 3' x 3'
FTPD045058-G-HC	DE, MD, NJ, PA, VA, WV ONLY	4.5 x 5.83	4.5 x 7.83	1'-8"	1.4	12"SQ/12"Ø	(1) 3' x 3'
FTPD0604-G-HC	ALL	6 x 4	6 x 6	1'-8"	1.4	24"SQ/12"Ø	(1) 2.5' x 2.5'
FTPD0606-G-HC	ALL	6 x 6	6 x 8	1'-8"	1.4	24"SQ/12"Ø	(1) 3' x 3'
FTPD0608-G-HC	ALL	6 x 8	6 x 10	1'-8"	1.4	24"SQ/12"Ø	(1) 4' x 4'
FTPD0610-G-HC	ALL	6 x 10	6 x 12	1'-8"	1.4	24"SQ/12"Ø	(1) 4' x 4'
FTPD0710-G-HC	ALL	7 x 10	7 x 13	2'-6"	2.1	24"SQ/24"Ø	(1) 4' x 4'
FTPD08105-G-HC	ALL	8 x 10.5	8 x 14	3'-0"	2.5	24"SQ/24"Ø	(1) 4' x 4'
FTPD08125-G-HC	N/A OR, WA	8 x 12.5	8 x 16	3'-0"	2.5	24"SQ/24"Ø	(2) 4' x 4'
FTPD09115-G-HC	OR, WA ONLY	9 x 11.5	9 x 15	3'-0"	2.5	24"SQ/24"Ø	(2) 4' x 4'

N/A = NOT AVAILABLE

FTPD-GD-HC DEEP OPTION CONFIGURATION

DESIGNATION (OPTIONS: -P)	AVAILABILITY	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX CURB OPENING	*MAX BYPASS FLOW (CFS)	GRATE INLET/ OUTLET ACCESS SIZE	TREE GRATE QTY & SIZE
FTPD0404-GD-HC	ALL	4 x 4	4 x 6	1'-8"	4.6	12"SQ/12"Ø	(1) 3' x 3'
FTPD0406-GD-HC	N/A DE, MD, NJ, PA, VA, WV	4 x 6	4 x 8	1'-8"	4.6	12"SQ/12"Ø	(1) 3' x 3'
FTPD045058-GD-HC	DE, MD, NJ, PA, VA, WV ONLY	4.5 x 5.83	4.5 x 7.83	1'-8"	4.6	12"SQ/12"Ø	(1) 3' x 3'
FTPD0604-GD-HC	ALL	6 x 4	6 x 6	1'-8"	4.6	24"SQ/12"Ø	(1) 2.5' x 2.5'
FTPD0606-GD-HC	ALL	6 x 6	6 x 8	1'-8"	4.6	24"SQ/12"Ø	(1) 3' x 3'
FTPD0608-GD-HC	ALL	6 x 8	6 x 10	1'-8"	4.6	24"SQ/12"Ø	(1) 4' x 4'
FTPD0610-GD-HC	ALL	6 x 10	6 x 12	1'-8"	4.6	24"SQ/12"Ø	(1) 4' x 4'
FTPD0710-GD-HC	ALL	7 x 10	7 x 13	2'-6"	6.8	24"SQ/24"Ø	(1) 4' x 4'
FTPD08105-GD-HC	ALL	8 x 10.5	8 x 14	3'-0"	8.2	24"SQ/24"Ø	(1) 4' x 4'
FTPD08125-GD-HC	N/A OR, WA	8 x 12.5	8 x 16	3'-0"	8.2	24"SQ/24"Ø	(2) 4' x 4'
FTPD09115-GD-HC	OR,WA ONLY	9 x 11.5	9 x 15	3'-0"	8.2	24"SQ/24"Ø	(2) 4' x 4'

N/A = NOT AVAILABLE

* MAX BYPASS FLOW IS INTERNAL WEIR FLOW . SITE SPECIFIC ANALYSIS IS REQUIRED TO DETERMINE GRATE INLET FLOW CAPACITY
** 3' x 3' TREE GRATE ON FTPD0404-G UNITS IS INSTALLED OVER A SMALLER 30" x 30" MAX OPENING FOR STRUCTURAL REASONS

filterra®

CONTECH®
ENGINEERED SOLUTIONS LLC
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800-338-1122 513-645-7000 513-645-7993 FAX

FILTERRA HC PEAK DIVERSION - GRATE (FTPD-G-HC) CONFIGURATION DETAIL

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER QUALITY
Bureau of Stormwater Permitting
401 East State Street
P.O. Box 420 Mail Code 401-02B
Trenton, NJ 08625-0420
Tel. (609) 633-7021 • Fax (609) 777-0432
www.nj.gov/dep/dwq/bnpc_home.htm

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

SHAWN M. LATOURETTE
Acting Commissioner

February 12, 2021

Derek M. Berg
Director – Stormwater Regulatory Management - East
Contech Engineered Solutions LLC
71 US Route 1, Suite F
Scarborough, ME 04074

Re: MTD Lab Certification
Filterra® HC Bioretention System
Off-line Installation Approved

TSS Removal Rate 80%

Dear Mr. Berg:

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7(c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Contech Engineered Solutions LLC has requested a Laboratory Certification for the Filterra® HC Bioretention System (Filterra® HC.)

The project falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advance Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix (dated January 2021) for this device is published online at http://www.njcat.org/uploads/newDocs/NJCATFilterraTechnologyVerificationReportFinal._.pdf.

The NJDEP certifies the use of the Filterra® HC stormwater treatment unit by Contech Engineered Solutions LLC at a TSS removal rate of 80% when designed, operated, and maintained in accordance with the information provided in the Verification Appendix and the following conditions:

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-5.5. The MTFR is calculated based on a verified loading rate of 3.12 gpm/ft^2 of effective filtration treatment area.

2. The Filterra® HC stormwater treatment unit shall be installed using the same configuration reviewed by NJCAT, and sized in accordance with the criteria specified in item 7 below.

3. This device cannot be used in series with another MTD or a media filter (such as a sand filter) to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.

4. Additional design criteria for MTDs can be found in the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual, which can be found online at www.njstormwater.org.

5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the Filterra® HC. A copy of the maintenance plan is attached to this certification. However, it is recommended to review the maintenance website at https://www.conteches.com/Portals/0/Documents/Maintenance%20Guides/Filterra%20HC%20OM%20Packet.pdf for any changes to the maintenance requirements.

6. For an MTD to be considered "green infrastructure" (GI) in accordance with the March 2, 2020 amendments to the Stormwater Management rules at N.J.A.C. 7:8, the MTD must meet the GI definition noted at amended N.J.A.C. 7:8-1.2. Specifically, the MTD shall (1) treat stormwater runoff through infiltration into subsoil; and/or (2) treat stormwater runoff through filtration by vegetation or soil; or (3) store stormwater runoff for reuse.

   The Filterra® HC filters stormwater runoff through an engineered biofiltration soil media and, thus, meets the definition of GI. Filterra® HC can be configured with or without a precast vault. Installations that will not include a precast vault will additionally need to comply the NJDEP Stormwater BMP Manual conditions regarding separation from the seasonal high water table and, if infiltration is proposed as an outlet, minimum vertical saturated hydraulic conductivity of the subsoil. Installations without a precast vault that do not rely on infiltration are required to maintain at least a one-foot separation from the seasonal high water table measured from the lowest point of the system. Installations without a precast vault that utilize infiltration are required to have the most hydraulically restrictive soil layer below the MTD meet the minimum tested vertical saturated hydraulic conductivity of one inch per hour and have at least two feet of separation from the seasonal high water table measured from the lowest point of the system.

7. Sizing Requirement:

   The example below demonstrates the sizing procedure for the Filterra® HC:

   Example: A 0.25-acre impervious site is to be treated to 80% TSS removal using the Filterra® HC. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs.

   The selection of the appropriate model of Filterra® HC is based upon both the maximum inflow drainage area and the MTFR. It is necessary to calculate the required model using both methods and to use the largest model determined by the two methods.

   Inflow Drainage Area Evaluation:

   The drainage area to the Filterra® HC in this example is 0.25 acres. Included in Table 1 below, all of the Filterra® HC models are designed with a maximum allowable drainage area greater than 0.25 acres. Specifically, the Filterra® HC with a 4'x4' media bay and a maximum allowable drainage area of 0.40 acres would be the smallest model able to treat runoff without exceeding the maximum allowable drainage area.

   Maximum Treatment Flow Rate (MTFR) Evaluation:

   The site runoff (Q) was based on the following:
   time of concentration = 10 minutes
   i = 3.2 in/hr (page 5-8, Fig. 5-3 of the NJ Stormwater BMP Manual)
   c = 0.99 (runoff coefficient for impervious)
   Q = ciA = 0.99 x 3.2 x 0.25 = 0.79 cfs

   Given the site runoff is 0.79 cfs and based on the MTFR's listed in Table 1 below, the Filterra® HC with a 16'x8' media bay and an MTFR of 0.889 cfs would be the smallest model that could be used to treat the impervious area without exceeding the MTFR. If using more than one unit for treating runoff, the units should be configured such that the flowrate to each unit does not exceed the design MTFR for each unit and ensuring the entire 0.25 acre area is treated.

The MTFR evaluation results will be used since that method results in the highest minimum configuration determined by the two methods.

The sizing table corresponding to the available system models is noted below:

Table 1. Filterra® HC MTFRs and Maximum Allowable Drainage Areas

	Available Filterra® Media Bay Sizes (feet)	Effective Filtration Treatment Area (ft^2)	Treatment Flow Rate (cfs)	Maximum Allowable Drainage Area (ac)
Standard Configuration Filterra and Filterra Biosape Vaults	4x4	16	0.111	0.40
	4x6 or 6x4	24	0.167	0.60
	4.5x7.83 or 7.83x4.5 (Nominal 4x8/8x4)	35.24	0.245	0.89
	6x6	36	0.250	0.91
	6x8 or 8x6	48	0.333	1.21
	6x10 or 10x6	60	0.417	1.51
	6x12 or 12x6	72	0.500	1.81
	7x13 or 13x7	91	0.632	2.29
	14x8	112	0.778	2.82
	16x8	128	0.889	3.22
	18x8	144	1.000	3.62
	20x8	160	1.111	4.03
	22x8	176	1.222	4.43
Peak Diversion Filterra Vaults	4x4	16	0.111	0.40
	4.5x5.83 (Nominal 4x6)	26.24	0.182	0.66
	6x4	24	0.167	0.60
	6x6	36	0.250	0.91
	6x8	48	0.333	1.21
	6x10 or 10x6	60	0.417	1.51
	7x10	70	0.486	1.76
	8x10.5	84	0.583	2.11
	8x12.5	100	0.694	2.52
	Custom and/or Filterra Bioscape	Media Area in ft^2	0.00694 * (Media Area in ft^2)	0.0252 * (Media Area in ft^2)

Be advised a detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management rules, N.J.A.C. 7:8. The plan must include all of the items identified in the Stormwater Management rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance and Retrofit of Stormwater Management Measures.

If you have any questions regarding the above information, please contact me at (609) 633-7021.

Sincerely,

Gabriel Mahon, Chief
Bureau of Stormwater Permitting

Attachment: Maintenance Plan
cc: Chron File
Richard Magee, NJCAT
Vince Mazzei, NJDEP – Water & Land Management
Nancy Kempel, NJDEP– BSTP
Keith Stampfel, NJDEP – DLRP
Dennis Contois, NJDEP – DLRP

CONTECH FILTERRA HC INSPECTION AND MAINTENANCE PROCEDURES

Filterra HC
Owner's Manual

filterra®
Bioretention Systems

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Bioretention Systems

Table of Contents

CONTECH®
ENGINEERED SOLUTIONS

Introduction

Thank you for your purchase of the Filterra® HC Bioretention System. Filterra HC is a specially engineered stormwater treatment system incorporating high performance biofiltration media to remove pollutants from stormwater runoff. All components of the system work together to provide a sustainable long-term solution for treating stormwater runoff.

The Filterra HC system has been delivered to you with protection in place to resist intrusion of construction related sediment which can contaminate the biofiltration media and result in inadequate system performance. These protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra HC system.

Included with your purchase is Activation of the Filterra HC system by the manufacturer as well as a 1-year warranty from delivery of the system and 1-year of routine maintenance (mulch replacement, debris removal, and pruning of vegetation) up to twice during the first year after activation.

Design and Installation

Each project presents different scopes for the use of Filterra HC systems. Information and help may be provided to the design engineer during the planning process. Correct Filterra HC box sizing (per local regulations) is essential to predict pollutant removal rates for a given area. The engineer shall submit calculations for approval by the local jurisdiction. The contractor is responsible for the correct installation of Filterra HC units as shown in approved plans. A comprehensive installation manual covering all Filterra configurations is available at www.ContechES.com.

Activation Overview

Activation of the Filterra HC system is a procedure completed by the manufacturer to place the system into working condition. This involves the following items:

- Removal of construction runoff protection devices
- Planting of the system's vegetation
- Placement of pretreatment mulch layer using mulch certified for use in Filterra HC systems.

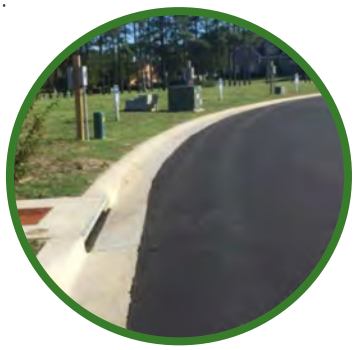
Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch certified for use in Filterra HC systems.

Minimum Requirements

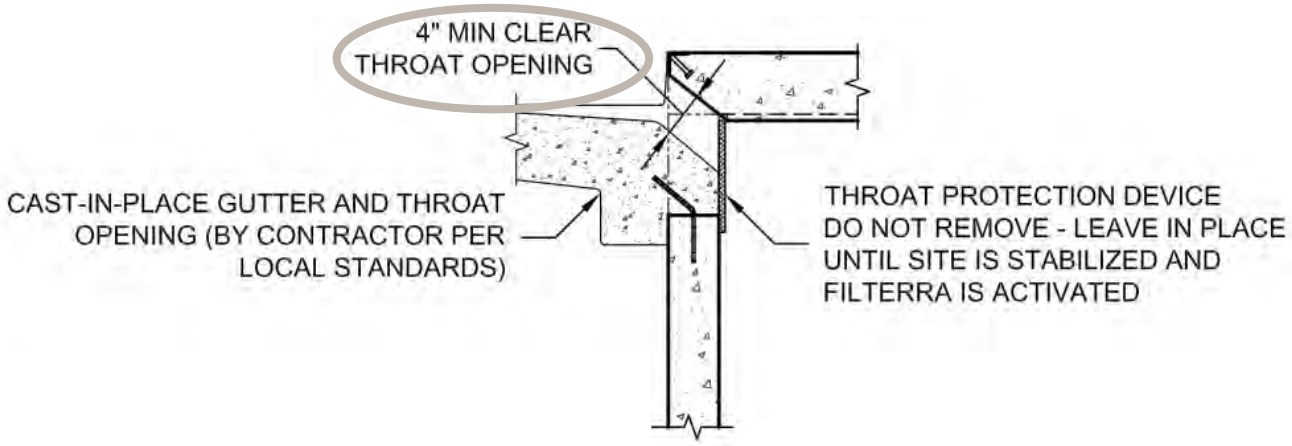
The minimum requirements for Filterra HC Activation are as follows:

1. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.

2. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra HC system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra HC system.



3. Filterra HC throat opening (if applicable) should be at least 4" in order to ensure adequate capacity for inflow and debris.



An Activation Checklist is included on page 12 to ensure proper conditions are met for Contech to perform the Activation services. A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation.

Filterra HC Plant Selection Overview

Plant Lists are available on the Contech website highlighting recommended plants for Filterra systems in your area. Keep in mind that plants are subject to availability due to seasonality and required minimum size for the Filterra HC system. Plants installed in the Filterra HC system are container plants (max 15 gallon) from nursery stock and will be immature in height and spread at Activation.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the Filterra HC system.

The "Planting Requirements for Filterra HC Systems" document is included as an appendix and discusses proper selection and care of the plants within Filterra HC systems.

Warranty Overview

Refer to the Contech Engineered Solutions LLC Stormwater Treatment System LIMITED WARRANTY for further information. The following conditions may void the Filterra HC system's warranty and waive the manufacturer provided Activation and Maintenance services:

- Unauthorized activation or performance of any of the items listed in the activation overview
- Any tampering, modifications or damage to the Filterra HC system or runoff protection devices
- Removal of any Filterra HC system components
- Failure to prevent construction related runoff from entering the Filterra HC system
- Failure to properly store and protect any Filterra HC components (including media and underdrain stone) that may be shipped separately from the vault

Routine Maintenance Guidelines

Routine maintenance is included by the manufacturer on all Filterra HC systems for the first year after activation. This includes a maximum of 2 visits to remove debris, replace pretreatment mulch, and prune the vegetation. More information is provided in the Operations and Maintenance Guidelines. Some Filterra HC systems also contain diversion bypass or outlet bays. Depending on site pollutant loading, these bays may require periodic removal of debris, however this is not included in the first year of maintenance and would likely not be required within the first year of operation.

These services, as well as routine maintenance outside of the included first year, can be provided by certified maintenance providers listed on the Contech website. Training can also be provided to other stormwater maintenance or landscape providers.

Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons to maintain are:

- Avoiding legal challenges from your jurisdiction's maintenance enforcement program.
- Prolonging the expected lifespan the media in the Filterra HC system.
- Avoiding more costly media replacement.
- Helping reduce pollutant loads leaving your property.

Simple maintenance of the Filterra HC is required to continue effective pollutant removal from stormwater runoff before discharge into downstream waters. This procedure will also extend the longevity of the living biofilter system. The Filterra HC system is also subjected to various materials entering the inlet, including trash, silt, leaves, etc. which will be contained above the mulch layer. Too much silt may inhibit the Filterra HC system flow rate, which is the reason for site stabilization before activation. Regular replacement of the mulch stops accumulation of such sediment.

If the system is not maintained on regular intervals, is subject to a catastrophic spill or other event, or subject to unusual pollutant loading, full media bed replacement could be required. Please contact Contech for further evaluation if you feel this may be necessary.

When to Maintain?

Contech includes a 1-year maintenance plan with each system purchase. Annual included maintenance consists of a maximum of two (2) scheduled visits. Additional maintenance may be necessary depending on sediment and trash loading (by Owner or at additional cost). The start of the maintenance plan begins when the system is activated.

Maintenance visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required; regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency;

e.g. some fast food restaurants require more frequent trash removal. Contributing drainage areas which are subject to new development wherein the recommended erosion and sediment control measures have not been implemented may require additional maintenance visits.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the Supplier and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the (maintenance) Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance to the Supplier (i.e. no pruning or fertilizing) during the first year.

Exclusion of Services

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the Supplier maintenance contract. Should a major contamination event occur the Owner must block off the outlet pipe of the Filterra HC (where the cleaned runoff drains to, such as drop inlet) and block off the inlet of the Filterra HC. The Supplier should be informed immediately.

Maintenance Visit Summary

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of Filterra HC and surrounding area
2. Removal of tree grate and erosion control stones
3. Removal of debris, trash and mulch
4. Mulch replacement
5. Plant health evaluation & pruning or replacement as necessary
6. Clean area around Filterra HC
7. Complete paperwork

Maintenance Tools, Safety Equipment and Supplies

Ideal tools include camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working near traffic and also safety hats and shoes. A T-Bar or crowbar should be used for moving the tree grates (up to 170 lbs ea.). Most visits require minor trash removal and a full replacement of mulch. See below for actual number of bagged mulch that is required in each media bay size. Mulch should be a double shredded, hardwood variety. Some visits may require additional Filterra engineered soil media for the Filterra HC system, available from the Supplier.

	Available Filterra® HC Media Bay Sizes (feet)	Filter Surface Area (ft^2)	Mulch Volume at 3" Depth (ft^2)	# of 2 ft^2 Mulch Bags
Standard Configuration Filterra and Filterra Biosape Vaults	4x4	16	4	2
	4x6 or 6x4	24	6	3
	4.5x7.83 or 7.83x4.5 (Nominal 4x8/8x4)	35.24	9	5
	6x6	36	9	5
	6x8 or 8x6	48	12	6
	6x10 or 10x6	60	15	8
	6x12 or 12x6	72	18	9
	7x13 or 13x7	91	23	12
	14x8	112	28	14
	16x8	128	32	16
	18x8	144	36	18
	20x8	160	40	20
	22x8	176	44	22
Peak Diversion Filterra Vaults	4x4	16	4	2
	4.5x5.83 or 5.83x4.5 (Nominal 4x6/6x4)	26.24	7	4
	6x6	36	9	5
	6x8	48	12	6
	6x10 or 10x6	60	15	8
	7x10	70	18	9
	8x10.5	84	21	11
	8x12.5	100	25	13
	Custom and/or Filterra Bioscape	Media Area in ft^2	0.25 x (Media Area in ft^2)	0.125 x (Media Area in ft^2)

Maintenance Visit Procedure

Keep sufficient documentation of maintenance actions to predict location specific maintenance frequencies and needs. An example Maintenance Report is included in this manual.

1. Inspection of Filterra HC and surrounding area

- Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

Record on Maintenance Report the following:

Standing Water	yes | no
Damage to Box Structure	yes | no
Damage to Grate	yes | no
Is Bypass Clear	yes | no

If yes answered to any of these observations, record with close-up photograph (numbered).

2. Removal of tree grate and erosion control stones

- Remove cast iron grates for access into Filterra HC box.
- Dig out silt (if any) and mulch and remove trash & foreign items.

3. Removal of debris, trash and mulch

Record on Maintenance Report the following:

Silt/Clay	yes | no
Cups/ Bags	yes | no
Leaves	yes | no
Buckets Removed	_____

- After removal of mulch and debris, measure distance from the top of the Filterra engineered media soil to the top of the top slab. Compare the measured distance to the distance shown on the approved Contract Drawings for the system. Add Filterra media (not top soil or other) to bring media up as needed to distance indicated on drawings.

Record on Maintenance Report the following:

Distance to Top of Top Slab (inches)	_____
Inches of Media Added	_____

4. Mulch replacement

- Add double shredded mulch evenly across the entire unit to a depth of 3″.
- Refer to Filterra Mulch Specifications for information on acceptable sources.
- Ensure correct repositioning of erosion control stones by the Filterra HC inlet to allow for entry of trash during a storm event.
- Replace Filterra HC grates correctly using appropriate lifting or moving tools, taking care not to damage the plant.

5. Plant health evaluation and pruning or replacement as necessary

- Examine the plant's health and replace if necessary.
- Prune as necessary to encourage growth in the correct directions

Record on Maintenance Report the following:

Height above Grate	_____ (ft)
Width at Widest Point	_____ (ft)
Health	healthy | unhealthy
Damage to Plant	yes | no
Plant Replaced	yes | no

6. Clean area around Filterra HC

- Clean area around unit and remove all refuse to be disposed of appropriately.

7. Complete paperwork

- Deliver Maintenance Report and photographs to appropriate location (normally Contech during maintenance contract period).
- Some jurisdictions may require submission of maintenance reports in accordance with approvals. It is the responsibility of the Owner to comply with local regulations.

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra HC.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra HC HC.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra HC.		Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.		Vault should be repaired.
Maintenance is ideally to be performed twice annually.				

Filterra HC Inspection & Maintenance Log

Filterra HC System Size/Model: _____ **Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Grate	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3″*	*Lowe's Premium Brown Mulch*	*4′*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Appendix 1 – Filterra® Activation Checklist

Project Name: _____ Company: _____

Site Contact Name: _____ Site Contact Phone/Email: _____

Site Owner/End User Name: _____ Site Owner/End User Phone/Email: _____

Preferred Activation Date: _____ (provide 2 weeks minimum from date this form is submitted)

Site Designation	System Size	Final Pavement / Top Coat Complete	Landscaping Complete / Grass Emerging	Construction materials / Piles / Debris Removed	Throat Opening Measures 4" Min. Height	Plant Species Requested
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	

Attach additional sheets as necessary.

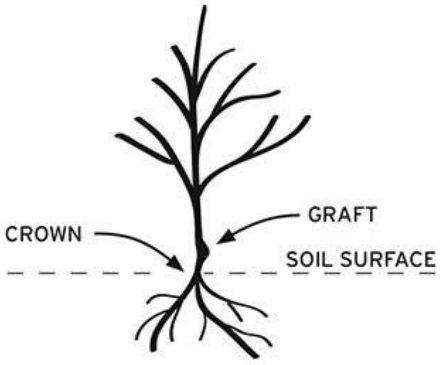
NOTE: A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation. ONLY Contech authorized representatives can perform Activation of Filterra HC systems; unauthorized Activations will void the system warranty and waive manufacturer supplied Activation and 1st Year Maintenance.

_____ _____

Signature Date

Appendix 2 – Planting Requirements for Filterra® HC Systems

Plant Material Selection



- Select plant(s) as specified in the engineering plans and specifications.
- Select plant(s) with full root development but not to the point where root bound.
- Use local nursery container plants only. Ball and burlapped plants are not permitted.
- For precast Filterra HC systems with a tree grate, plant(s) must not have scaffold limbs at least 14 inches from the crown due to spacing between the top of the mulch and the tree grate. Lower branches can be pruned away provided there are sufficient scaffold branches for tree or shrub development.
- For precast Filterra HC systems with a tree grate, at the time of installation, it is required that plant(s) must be at least 6" above the tree grate opening at installation for all Filterra configurations. This DOES NOT apply to Full Grate Cover designs.
- Plant(s) shall not have a mature height greater than 25-30 feet.
- A 7-15 gallon container size shall be used.
- For precast Filterra HC systems, plant(s) should have a single trunk at installation, and pruning may be necessary at activation and maintenance for some of the faster growing species, or species known to produce basal sprouts

Plant Installation

- During transport protect the plant leaves from wind and excessive jostling.
- Prior to removing the plant(s) from the container, ensure the soil moisture is sufficient to maintain the integrity of the root ball. If needed, pre-wet the container plant.
- Cut away any roots which are growing out of the container drain holes. Plants with excessive root growth from the drain holes should be rejected.
- Plant(s) should be carefully removed from the pot by gently pounding on the sides of the container with the fist to loosen root ball. Then carefully slide out. Do not lift plant(s) by trunk as this can break roots and cause soil to fall off. Extract the root ball in a horizontal position and support it to prevent it from breaking apart. Alternatively, the pot can be cut away to minimize root ball disturbance.
- Remove any excess soil from above the root flare after removing plant(s) from container.
- Excavate a hole with a diameter 4" greater than the root ball, gently place the plant(s).
- If plant(s) have any circling roots from being pot bound, gently tease them loose without breaking them.
- If root ball has a root mat on the bottom, it should be shaved off with a knife just above the mat line.
- Plant the tree/shrub/grass with the top of the root ball 1" above surrounding media to allow for settling.
- All plants should have the main stem centered in the tree grate (where applicable) upon completion of installation.
- With all trees/shrubs, remove dead, diseased, crossed/rubbing, sharply crotched branches or branches growing excessively long or in wrong direction compared to majority of branches.
- To prevent transplant shock (especially if planting takes place in the hot season), it may be necessary to prune some of the foliage to compensate for reduced root uptake capacity. This is accomplished by pruning away some of the smaller secondary branches or a main scaffold branch if there are too many. Too much foliage relative to the root ball can dehydrate and damage the plant.
- Plant staking may be required.

Mulch Installation

- Only mulch that has been meeting Contech Engineered Solutions' mulch specifications can be used in the Filterra HC system.
- Mulch must be applied to a depth of 3" evenly over the surface of the media.

Irrigation Requirements

- Each Filterra HC system must receive adequate irrigation to ensure survival of the living system during periods of drier weather.
- Irrigation sources include rainfall runoff from downspouts and/or gutter flow, applied water through the tree grate or in some cases from an irrigation system with emitters installed during construction.
- At Activation: Apply about one (cool climates) to two (warm climates) gallons of water per inch of trunk diameter over the root ball.
- During Establishment: In common with all plants, each Filterra HC plant will require more frequent watering during the establishment period. One inch of applied water per week for the first three months is recommended for cooler climates (2 to 3 inches for warmer climates). If the system is receiving rainfall runoff from the drainage area, then irrigation may not be needed. Inspection of the soil moisture content can be evaluated by gently brushing aside the mulch layer and feeling the soil. Be sure to replace the mulch when the assessment is complete. Irrigate as needed**.
- Established Plants: Established plants have fully developed root systems and can access the entire water column in the media. Therefore, irrigation is less frequent but requires more applied water when performed. For a mature system assume 3.5 inches of available water within the media matrix. Irrigation demand can be estimated as 1" of irrigation demand per week. Therefore, if dry periods exceed 3 weeks, irrigation may be required. It is also important to recognize that plants which are exposed to windy areas and reflected heat from paved surfaces may need more frequent irrigation. Long term care should develop a history which is more site specific.

** Five gallons per square yard approximates 1 inch of water. Therefore, for a 6' by 6' Filterra HC approximately 20-60 gallons of water is needed. To ensure even distribution of water it needs to be evenly sprinkled over the entire surface of the filter bed, with special attention to make sure the root ball is completely wetted. NOTE: if needed, measure the time it takes to fill a five-gallon bucket to estimate the applied water flow rate then calculate the time needed to irrigate the Filterra HC system. For example, if the flow rate of the sprinkler is 5 gallons/minute then it would take 12 minutes to irrigate a 6' by 6' filter.

Notes

filterra®
Bioretention Systems

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ENGINEERED SOLUTIONS

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