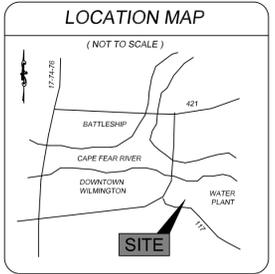


OFF THE HOOK YACHT SALES

BOAT REPAIR BUILDING
1701 N. 5TH AVE
WILMINGTON, NC



LOCATED IN THE CITY OF WILMINGTON, NEW HANOVER COUNTY, NORTH CAROLINA
DESCRIPTION OF WORK: GRADING, PAVING, DRAINAGE, AND UTILITIES

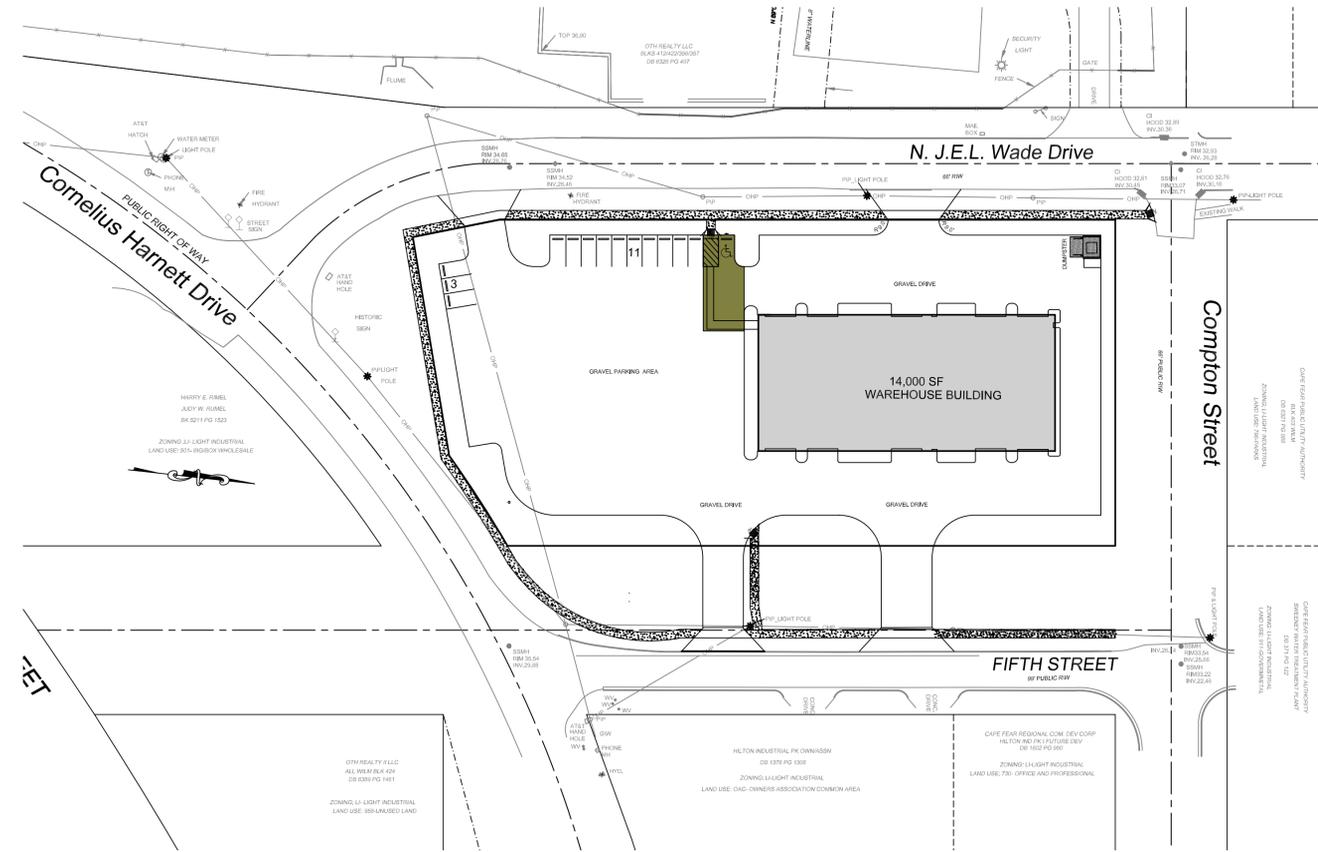
OWNER: OTH REALTY LLC
1701 N J.E.L. WADE DR.
WILMINGTON N.C. 28401

LEGEND

- WV = WATER VALVE
- WM = WATER METER
- C/O = SANITARY SEWER CLEAN OUT
- INV. = INVERT
- B/O = BLOW OFF ASSEMBLY
- BFP = BACK FLOW PREVENTOR
- GW = GUY WIRE
- SWMH = STORM MANHOLE
- GT. = GREASE TRAP
- FH = FIRE HYDRANT ASSEMBLY
- I.S. = IRON SET
- CR = CURB RAMP
- = SANITARY SEWER MH
- = CURB INLET
- ⊙ = TREE TO BE PRESERVED
- ⊗ = TREE TO BE REMOVED
- W = WATER SERVICE
- ⊕ = SEWER CLEANOUT
- ⊕ = WATER VALVE
- ⊕ = SIGN LOCATION
- LP = LIGHT POLE
- = PROPERTY LINE
- = BUILDING SETBACK
- = CENTERLINE
- = EASEMENT
- = COMPUTED PROPERTY LINE
- = LIMITS OF DISTURBANCE/PROJECT LIMITS
- = PROPOSED STORM DRAIN
- = PROPOSED SANITARY SEWER
- ▨ = WETLAND
- ▨ = PROPOSED SIDEWALK
- HC = HANDICAP CROSSING

STABILIZATION TIME FRAMES:	
SITE AREA DESCRIPTION	STABILIZATION
Perimeter dikes, swales, ditches and slopes	7 DAYS
High Quality Water (HQW) Zones	7 DAYS
Slopes steeper than 3:1	7 DAYS
Slopes 3:1 or flatter	14 DAYS
All other areas with slopes flatter than 4:1	14 DAYS

NOTE WELL:
ANY AREAS ON-SITE WITHOUT ACTIVITY SHALL BE STABILIZED WITHIN 15 WORKING DAYS OR 21 CALENDAR DAYS AND AS ABOVE. ALL SLOPES MUST BE STABILIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY ACTIVITY.
DETAILS SHOWN ARE TYPICAL OF INSTALLATIONS REQUIRED BY THE TOWN AND COUNTY. THIS SHEET DOES NOT PURPORT TO SHOW ALL REQUIRED CONSTRUCTION DETAILS, BUT FURTHER SERVES AS A GUIDE. THE CONTRACTOR IS RESPONSIBLE FOR ADHERING TO ALL CITY, COUNTY AND STATE CODES AND CONSTRUCTION STANDARDS.
No geotechnical testing has been performed on site. No warranty is made for suitability of subgrade, and undercut and any required replacement with suitable material shall be the responsibility of the contractor.



GENERAL NOTES:

- INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXACT ELEVATIONS AND LOCATIONS OF ALL EXISTING UTILITIES AT ALL CROSSINGS PRIOR TO COMMENCING TRENCH EXCAVATION. IF ACTUAL CLEARANCES ARE LESS THAN INDICATED ON PLAN, THE CONTRACTOR SHALL CONTACT THE DESIGN ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION. ANY CONDITION DISCOVERED OR EXISTING THAT WOULD NECESSITATE A MODIFICATION OF THESE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION.
- NO CONSTRUCTION IS TO BEGIN BEFORE LOCATION OF EXISTING UTILITIES HAS BEEN DETERMINED. CALL "NO ONE-CALL" AT LEAST 48 HOURS BEFORE COMMENCING CONSTRUCTION.
- ALL TREES WHICH ARE NOT REQUIRED TO BE CLEARED FOR CONSTRUCTION SHALL BE PRESERVED WHEREVER POSSIBLE UNLESS OTHERWISE DIRECTED.
- CONTRACTOR SHALL ADJUST ALL MANHOLES, VALVE AND CURB BOXES TO THE FINAL GRADE UPON COMPLETION OF ALL CONSTRUCTION. ANY BOXES DAMAGED OR OTHERWISE DISTURBED BY THE CONTRACTOR SHALL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST AND EROSION DURING CONSTRUCTION AT HIS EXPENSE. PARKING AREAS SHALL BE WATERED TO CONTROL DUST WHEN ORDERED BY THE ENGINEER.
- NO GEOTECHNICAL TESTING HAS BEEN PERFORMED ON SITE. NO WARRANTY IS MADE FOR SUITABILITY OF SUBGRADE, AND UNDERCUT AND ANY REQUIRED REPLACEMENT WITH SUITABLE MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- EXTREME CARE SHALL BE TAKEN TO ENSURE MINIMUM SEPARATIONS AT ALL UTILITY CROSSINGS.
- CONTRACTOR TO ENSURE THAT STREET PAVEMENT IS PLACED SO AS TO DRAIN POSITIVELY TO THE ROADWAY INLETS AND CATCH BASINS.
- CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS.
- THIS PLAN IS FOR SITE UTILITIES, GRADING, ROADWORK, AND DRAINAGE ONLY.
- AFFECTED NON-MUNICIPAL UTILITIES SHALL BE CONTACTED AND PROVIDED WITH PLANS AND OTHER PERTINENT INFORMATION, WHEN FEASIBLE, TO COORDINATE APPROPRIATE SCHEDULING AND PLACEMENT. AT THE MINIMUM THIS SHOULD INCLUDE AT&T AND DUKE (PROGRESS) ENERGY.
- ALL CONSTRUCTION TO CONFORM TO CITY STANDARDS AND ALL APPLICABLE STATE & LOCAL CODES.
- CONTRACTOR TO COORDINATE ANY REQUIRED TRAFFIC CONTROL WITH THE STATE AND CITY. CONTRACTOR RESPONSIBLE FOR ANY ADDITIONAL REQUIRED PERMITS.
- CARE SHALL BE TAKEN DURING FINAL GRADING TO ENSURE POSITIVE DRAINAGE TO RECEIVING STRUCTURES. ALL STORM WATER RUNOFF FROM BUILT UPON AREAS (i.e. IMPERVIOUS SURFACES AND ROOF DRAINAGE) TO BE DIRECTED TO STORM SEWER COLLECTION SYSTEM (i.e. STORM INLETS OR PONES) BY SWALES, OVERLAND FLOW, ADDITIONAL GRADING, OR LANDSCAPING INLETS.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ANY RELOCATIONS, REALIGNMENTS, DISCONNECTIONS OR CONNECTIONS OF EXISTING UTILITIES WITH APPLICABLE AUTHORITIES.
- CLEARING AND GRUBBING OF SITE TO INCLUDE REMOVAL OF EXISTING CURBS, ASPHALT, INLETS, AND ANY OTHER STRUCTURES INCLUDING TREES, STUMPS AND DEBRIS EXISTING ON SITE. TREES NOT REQUIRED TO BE CLEARED FOR CONSTRUCTION SHALL REMAIN UNLESS OTHERWISE DIRECTED.
- ALL SIGNS AND PAVEMENT MARKINGS SHALL MEET NCDOT AND MUTCD STANDARDS.
- SANITARY SERVICES SMALLER THAN 8" SHALL HAVE CLEANOUTS AT INTERVALS OF NOT MORE THAN 100'. CLEANOUTS SHALL BE PROVIDED FOR SERVICE LINES AND BUILDING DRAINS THAT HAVE HORIZONTAL DIRECTION CHANGES GREATER THAN 45 DEGREES.
- SEE 2018 IPC FOR FURTHER GUIDANCE ON UTILITY SERVICE REQUIREMENTS.
- PRIOR TO ANY CLEARING, GRADING, OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.

- This map is not for conveyance, recordation, or sales.
- A portion of this property is located within in the 0.2% SFHA according to Flood Insurance Rate Map Community ID# 3720314500 suffix K effective date 8/28/2018
- This property is zoned CB-COMMUNITY BUSINESS, City of Wilmington.
- Water service to be CFPWA (public).
- Sewer service to be CFPWA (public).
- Topographic data furnished by Bateman Civil Survey Company.
- No Wetlands exist on site.

INDEX TO DRAWINGS	
SHEET No.	DESCRIPTION
1 OF 11	COVER SHEET
2 OF 11	GENERAL NOTES & DETAILS
3 OF 11	GENERAL NOTES & DETAILS
4 OF 11	GENERAL NOTES & DETAILS
5 OF 11	CFPUA DETAILS
6 OF 11	CFPUA DETAILS
7 OF 11	EXISTING CONDITIONS & TREE SURVEY
8 OF 11	SITE PLAN
9 OF 11	GRADING PLAN
10 OF 11	STORM PROFILES
11 OF 11	TREE SURVEY AND REMOVAL PLAN
1 OF 2	INFILTRATION CHAMBER DETAILS
2 OF 2	INFILTRATION CHAMBER DETAILS
EC-1	EROSION AND DRAINAGE
EC-2	EROSION CONTROL AND DRAINAGE
EC-3	EROSION CONTROL AND DRAINAGE
EC-4	EROSION CONTROL AND DRAINAGE
L1	LANDSCAPE PLAN

PARKING
MINIMUM PARKING REQUIRED (1 PER 1000 SF OF BLDG.) 14 SPACES
MAXIMUM PARKING ALLOWED - NO MAXIMUM STATED
TOTAL PARKING SHOWN 14 TOTAL SPACES
ALL PARKING AND DRIVEWAY STRIPING TO COMPLY WITH CURRENT CITY STANDARDS
ACCESSIBLE PARKING REQUIRED: 1 PER 25
ACCESSIBLE PARKING PROVIDED: 1
BICYCLE PARKING REQUIRED: 5
BICYCLE PARKING PROVIDED: 5

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____

Approved Construction Plan

Name	Date
Planning _____	_____
Traffic _____	_____
Fire _____	_____

REV. NO.	REVISIONS	DATE
7	REVISED PARKING AREA	5/16/2023
6	UPDATE TO PLAN PER CFPWA COMMENTS	1/23/2022
5	ADDED EXISTING UTILITY	11-30-2022
4	UPDATED ADDRESS	10-4-2022
3	REVISED ITRC COMMENTS	4-21-2022
2	REVISED ITRC COMMENTS	4-05-2022
1	REVISED ITRC COMMENTS	2-03-2022

PRELIMINARY PLAN

SITE PLAN
OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY
CAPE FEAR TOWNSHIP, NEW HANOVER COUNTY, NORTH CAROLINA

1701 N. 5TH AVE
WILMINGTON, NC

Date: 5-5-2022
Scale: HORIZ.: 1" = 50'
Drawn: GW
Checked: AHG
Project No: 4372
Sheet No: 1
Of: 11

OWNER:
OTH REALTY LLC
1701 N J.E.L. WADE DR.
WILMINGTON N.C. 28401

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
1123 CLARK PARKWAY
WILMINGTON, N.C. 28403
PHONE: 910-348-0002
LICENSE # C-5997

CITY STANDARD NOTES:

- PROTECT ALL EXISTING UTILITIES FROM CONSTRUCTION ACTIVITY. TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
- ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST BE PROPERLY BARRICADED WITH FENCING AND PROTECTED THROUGHOUT CONSTRUCTION TO INSURE THAT NO CLEARING, GRADING OR STAGING OF MATERIALS WILL OCCUR IN THOSE AREAS.
- NO EQUIPMENT IS ALLOWED ON SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING IS INSTALLED AND APPROVED. PROTECTIVE FENCING IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, AND CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION METHODS.

TRAFFIC ENGINEERING

- ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY, MUTCD, AND/OR NCDOT STANDARDS.
- ONCE STREETS ARE OPEN TO TRAFFIC, CONTACT TRAFFIC ENGINEERING TO REQUEST INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
- TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
- CONTACT TRAFFIC ENGINEERING AT 341-7888 TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.
- CONTACT 811 PRIOR TO ANY EXCAVATION. CALL TRAFFIC ENGINEERING AT 341-7888 FORTY EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT-OF-WAY.
- TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING PRIOR TO ACTUAL STRIPING.
- ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
- STOP SIGNS AND STREET SIGNS TO REMAIN IN PLACE DURING CONSTRUCTION.
- TACTILE WARNING MATS WILL BE INSTALLED ON ALL WHEELCHAIR RAMPS.
- A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. IN CERTAIN CASES ENTIRE RESURFACING OF THE OPEN CUT AREA MAY BE REQUIRED.
- ANY BROKEN OR MISSING SIDEWALK, DRIVEWAY PANELS OR CURBING SHALL BE REPLACED WHETHER DAMAGED DURING CONSTRUCTION OR DAMAGE WAS EXISTING.
- PRIOR TO ENTERING ANY AGREEMENT REGARDING THE SALE OF A HOUSE OR LOT IN A SUBDIVISION, THE BUYER MUST RECEIVE A STREET DISCLOSURE STATEMENT.
- ALL PROPOSED VEGETATION WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30° TO 10°.
- CONTACT THE CITY AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS. PROPOSED APPROXIMATE LOCATIONS SHOWN ON PLANS.
- STREET LIGHTS SHALL BE DEF ENCLOSED CUTOFF (COBRA TYPE), HIGH PRESSURE SODIUM VAPOR (HPSV) OR DESIGNATED LED EQUIVALENT FIXTURE INSTALLED WITHIN THE RECOMMENDED RANGE OF MOUNTING HEIGHTS FOR THE SPECIFIC FIXTURE. THE STANDARD STREET LIGHT SHALL BE INSTALLED ON A FIBERGLASS POLE. SEE CITY TECHNICAL STANDARDS FOR FURTHER DETAIL.

GENERAL UTILITY NOTES

- WATER AND SEWER SERVICE SHALL MEET CAPE FEAR PUBLIC UTILITY AUTHORITY (CPFAU) DETAILS AND SPECIFICATIONS.
- PROJECT SHALL COMPLY WITH CAPE FEAR PUBLIC UTILITY AUTHORITY CROSS CONNECTION CONTROL REQUIREMENTS. WATER METERS CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND THE STATE HAS GIVEN THEIR FINAL APPROVAL. CALL 343-3910 FOR INFORMATION.
- IF THE CONTRACTOR DESIRES CPFAU WATER FOR CONSTRUCTION HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
- ANY IRRIGATION SYSTEM SUPPLIED BY CPFAU WATER SHALL COMPLY WITH CPFAU CROSS CONNECTION CONTROL REGULATIONS. CALL 343-3910 FOR INFORMATION.
- ANY IRRIGATION SYSTEM SHALL BE EQUIPPED WITH A RAIN AND FREEZER SENSOR.
- ANY BACKFLOW PREVENTION DEVICES REQUIRED BY CPFAU WILL NEED TO BE ON THE LIST OF APPROVED DEVICES BY USCFOOCHW OR ASSE.
- CONTRACTOR TO FIELD VERIFY EXISTING WATER AND SEWER SERVICE LOCATIONS, SIZES AND MATERIALS PRIOR TO CONSTRUCTION. ENGINEER TO BE NOTIFIED OF ANY CONFLICTS.
- CONTRACTOR SHALL MAINTAIN ALL-WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
- UNDERGROUND FIRE LINES MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910-341-8996.
- CONTACT THE NORTH CAROLINA ONE CALL CENTER AT 1-800-632-4949 PRIOR TO ANY DIGGING, CLEARING OR GRADING.
- ANY PVC MAINS ARE TO BE MARKED WITH NO. 10 INSULATED COPPER WIRE INSTALLED THE ENTIRE LENGTH AND ATTACHED TO THE PIPE AND STRIPPED TO BARE WIRE AND SECURED TO ALL VALVES AND FITTINGS. ACCESSIBLE IN ALL VALVE AND METER BOXES. ALL WATER MAINS SHALL MAINTAIN A MINIMUM OF 3' COVER.

ADDITIONAL NOTES:

- THIS MAP IS PRELIMINARY, NOT INTENDED FOR RECORDATION, SALES, OR CONVEYANCE.
- ALL DISTANCES AS SHOWN ARE HORIZONTAL.
- SEWER PROVIDED BY CPFAU
- WATER PROVIDED BY CPFAU
- SITE WILL MEET ALL ZONING REQUIREMENTS.
- REGULATED TREES ON SITE TO BE PRESERVED AS SHOWN.
- STRIPING AND LANES TO CITY STANDARDS (THERMOPLASTIC).
- NO VEHICULAR ACCESS TO SITE EXCEPT AS SHOWN.
- ALL UTILITIES UNDERGROUND.
- LANDSCAPING AND LIGHTING PLAN BY OTHERS.
- CONTRACTOR TO COORDINATE REMOVAL AND RELOCATION OF LIGHTING AND OTHER NON-MUNICIPAL UTILITIES SUCH AS ELECTRICAL AND TELEPHONE CONNECTIONS WITH THE AFFECTED AGENCIES AND THE OWNER AND ARCHITECT.
- ALL SERVICES TO BE INSTALLED IN ACCORDANCE WITH CITY AND CPFAU TECHNICAL STANDARDS.

ADDITIONAL ADA NOTES:

- REFER TO 2018 NCDOT ROADWAY STANDARD DRAWINGS NUMBER 846.05-846.06 FOR RAMP DESIGN AND DETAILS.
- ALL RAMPS, HANDICAP PARKING, AND ACCESSIBLE ROUTES SHALL COMPLY WITH THE LATEST ADA GUIDELINES
- RUNNING SLOPES ALONG AN ACCESSIBLE ROUTE EXCEEDING 2% SHALL BE CONSIDERED A RAMP
- 8.33% (1:12) MAX RAMP SLOPE
- MAXIMUM CROSS SLOPE ALLOWED ALONG ACCESSIBLE ROUTES: 2.00%
- ALL CURB RAMPS REQUIRE A (4'-0") MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.
- CONTRACTOR TO ENSURE SLOPES IN HANDICAP PARKING STALLS AND ACCESS ISLES DO NOT TO EXCEED 2% IN ANY DIRECTION.

ADDITIONAL NOTES CONT.:

- This property is not located within a special flood hazard area according to Flood Insurance Rate Map Community Panel #37203126J, effective date April 3, 2006.
- Handicap Ramps shall be provided at all intersections.
- 15 suitable trees per acre are to be preserved or planted in accordance with City of Wilmington standards.
- Refuse collection by dumpster and private hauler.
- Reflectors shall be installed as Per City And NCDOT Standards.
- Per the requirements of the stormwater permit, the following shall occur prior to issuance of a certificate of occupancy or operation of the permitted facility.
 - *As-built drawings for all stormwater management facilities shall be submitted to the city of Wilmington engineering division.
 - *An engineer's certification shall also be submitted, along with all supporting documentation that specifies, under seal that the as-built stormwater measures, controls and devices are in compliance with the approved stormwater management plans.
 - *A final inspection by city of Wilmington engineering personnel.
- All required easement maps shall be reviewed by city staff and recorded prior to issuance of a certificate of occupancy.

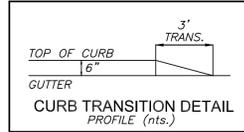
UTILITY NOTES

- SEWER AND WATER TO BE PUBLIC AND PROVIDED BY CPFAU. SPECIFIC LOCATION, SIZING, AND DETAILS WILL BE PROVIDED ON THE CONSTRUCTION PLANS AND ARE TO BE APPROVED BY CPFAU AND CITY ENGINEERS.
- CPFAU STANDARD DETAIL SHEETS FOR SEWER AND WATER TAPS TO BE INCLUDED AS A PART OF THIS PLAN, ATTACHED.
 - 48-HOUR NOTICE AND 3 COMPLETE SETS OF PLANS REQUIRED FOR PRE-CONSTRUCTION MEETING BY CONTRACTOR.
 - NCDOT ENCROACHMENT REQUIRED FOR ANY WORK IN PUBLIC ROW.
 - ALL FEES TO BE PAID PRIOR TO PRE-CONSTRUCTION MEETING.

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD NOTES:

- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
- WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN THE END OF LINE MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
- ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
- MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
- NO FLEXIBLE COUPLINGS SHALL BE USED.
- ALL STAINLESS STEEL FASTENERS SHALL BE 316.
- CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM
- ALL PROPERTY CORNERS. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.

ADDITIONAL NOTES:
CPFAU PERMIT REQUIRED FOR ANY UTILITY SERVICES WORK. CONTRACTOR RESPONSIBLE FOR PERMIT AND COORDINATION WITH CPFAU. ALL SERVICES TO BE INSTALLED IN ACCORDANCE WITH CITY AND CPFAU TECHNICAL STANDARDS.



ADDITIONAL UTILITY/GRADING NOTES

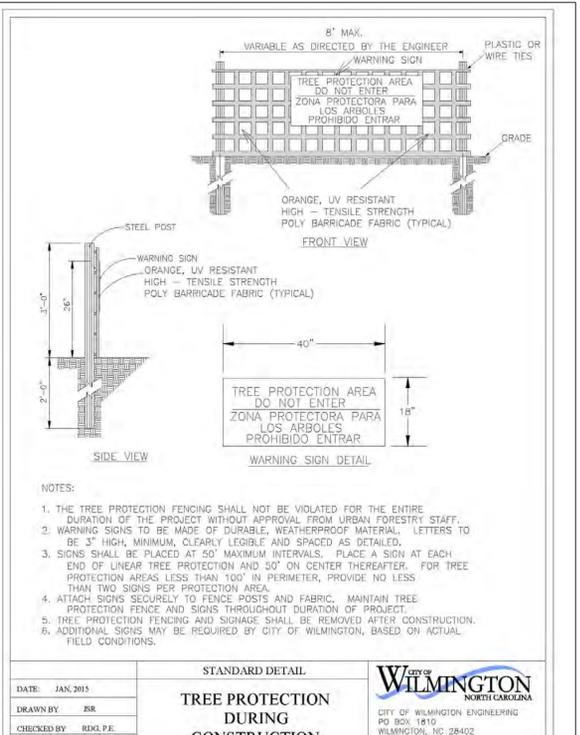
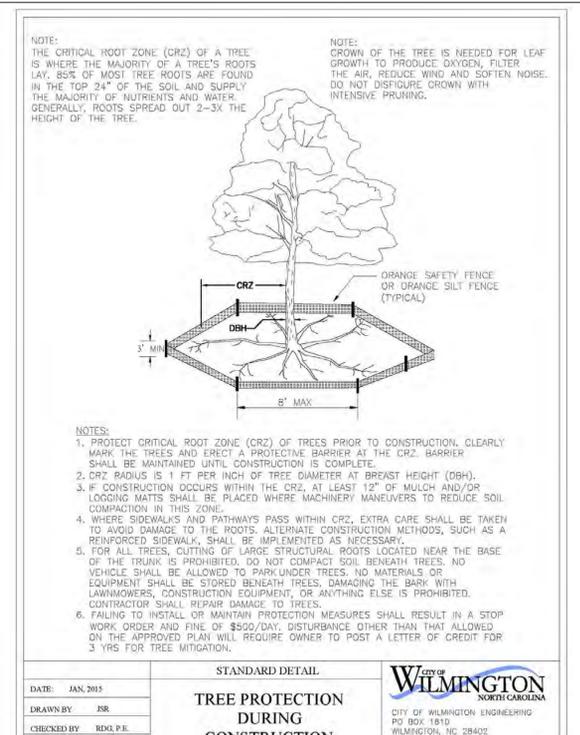
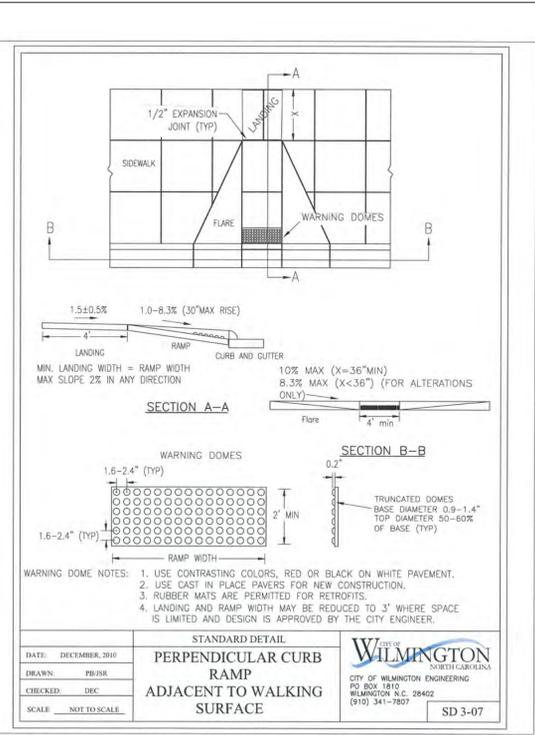
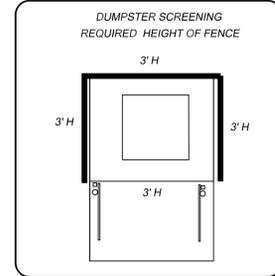
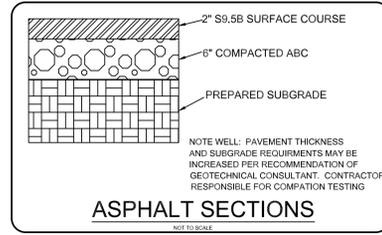
- CARE SHALL BE TAKEN DURING FINAL GRADING TO ENSURE POSITIVE DRAINAGE TO RECEIVING STRUCTURES. ALL STORM WATER RUNOFF FROM BUILT UPON AREAS (I.E. IMPERVIOUS SURFACES AND ROOF DRAINAGE) TO BE DIRECTED TO STORM SEWER COLLECTION SYSTEM (I.E. STORM INLETS OR PONDS) BY SWALES, OVERLAND FLOW, ADDITIONAL GRADING, OR LANDSCAPING INLETS.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ANY RELOCATIONS, REALIGNMENTS, DISCONNECTIONS OR CONNECTIONS OF EXISTING UTILITIES WITH APPLICABLE AUTHORITIES.
- CLEARING AND GRUBBING OF SITE TO INCLUDE REMOVAL OF EXISTING CURBS, ASPHALT, INLETS, AND ANY OTHER STRUCTURES INCLUDING TREES, STUMPS AND DEBRIS EXISTING ON SITE. TREES NOT REQUIRED TO BE CLEARED FOR CONSTRUCTION SHALL REMAIN UNLESS OTHERWISE DIRECTED.
- MINIMUM SEPARATION SHALL BE MAINTAINED AS FOLLOWS:
 - a. HORIZONTAL CLEARANCE OF 10 FEET BETWEEN SANITARY SEWER AND WATER MAINS.
 - b. HORIZONTAL CLEARANCE OF 10 FEET BETWEEN STORM SEWER AND WATER MAINS.
 - c. WHERE VERTICAL CLEARANCE IS LESS THAN 18" BETWEEN SANITARY SEWER AND WATER OR WHERE SEWER LINE CROSSES ABOVE WATER MAIN, BOTH PIPES SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING.
 - d. WHERE VERTICAL CLEARANCE IS LESS THAN 24" BETWEEN SANITARY SEWER AND STORM DRAIN, SANITARY SEWER SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING.
 - e. WHERE VERTICAL CLEARANCE IS LESS THAN 18" BETWEEN WATER MAIN AND STORM DRAIN, WATER MAIN SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING.
- SEE DETAIL SHEETS FOR TYPICAL UTILITIES HOOKUPS.
- ALL STREETS ARE PROPOSED TO BE PUBLIC (BUILT TO CITY OF WILMINGTON STANDARDS/ N.C.D.O.T. PAVEMENT AND SUBGRADE STANDARDS).
- ALL SANITARY SEWER MAINS TO BE 8" UNLESS OTHERWISE INDICATED.
- ALL WATER MAINS TO BE 8" UNLESS OTHERWISE INDICATED.
- TWO VALVES ARE REQUIRED AT "T" INTERSECTIONS AND ONE VALVE ON THE WATER LINE TO FIRE HYDRANTS.
- A BLOW-OFF VALVE IS REQUIRED AT THE TERMINUS OF ALL "DEAD END" WATER LINES.
- SANITARY SEWER, STORM, WATER, AND OTHER PERTINENT DETAILS/SPECIFICATIONS TO BE PROVIDED WITH CONSTRUCTION PLANS AND SHALL MEET OR EXCEED CITY AND CPFAU DESIGN STANDARDS

ADDITIONAL FIRE DEPARTMENT NOTES:

- HYDRANTS MUST BE WITHIN 150' OF THE FDC
- THE FDC MUST BE WITHIN 40' OF FIRE APPARATUS PLACEMENT
- LANDSCAPING MAY NOT BLOCK ANY FDC OR HYDRANT WITH A 3' CLEAR SPACE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT AND FDC
- CONTRACTOR TO MAINTAIN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES DURING CONSTRUCTION
- HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB
- NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO BUILDING CONSTRUCTION
- ADDITIONAL FIRE PROTECTION AND/OR ACCESSIBILITY REQUIREMENTS MAY BE REQUIRED DUE TO ANY SPECIAL CIRCUMSTANCES CONCERNING THE PROJECT.
- CONTRACTOR SHALL SUBMIT A RADIO SIGNAL STRENGTH STUDY FOR ALL COMMERCIAL BUILDINGS THAT DEMONSTRATES THAT EXISTING EMERGENCY RESPONDER RADIO SIGNAL LEVELS MEET THE REQUIREMENTS OF SECTION 510 OF THE 2018 NC FIRE CODE.
- ALL ISOLATION WALLS WITHIN THE "HOT BOX" AND BETWEEN THE "HOT BOX" AND THE RISER ROOM, MUST BE ELECTRICALLY SUPERVISED. IF SPRINKLER SYSTEM PRESENT

ADA NOTES

- LOCATION OF WHEELCHAIR RAMPS:
 - IN ACCORDANCE WITH THE RATIFIED HOUSE BILL 1296, ALL STREET CURBS IN NORTH CAROLINA BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY HANDICAPPED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTER AND SIDEWALKS ARE PROVIDED AND AT OTHER MAJOR POINTS OF PEDESTRIAN FLOW.
 - WHEELCHAIR RAMPS SHOULD BE LOCATED AS INDICATED IN DETAIL DRAWINGS. HOWEVER EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. MAY AFFECT PLACEMENT.
- CONSTRUCTION NOTES:
 - NO SLOPE SHALL EXCEED 1"=1" (12:1) ON THE RAMP OR SIDEWALK.
 - IN NO CASE SHALL THE WIDTH OF WHEELCHAIR RAMPS BE LESS THAN 40" (3'-4") WIDTHS MAY EXCEED 40" IF NECESSARY.
 - USE CLASS "A" CONCRETE WITH THE SURFACE HAVING A ROUGH, NON-SKID TYPE FINISH.
 - 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE CONCRETE WHEELCHAIR RAMP JOINS ANY RIGID PAVEMENT OR STRUCTURE.
 - CONSTRUCTION METHODS SHALL CONFORM WITH THOSE OF THE GOVERNING BODY WHICH HAS JURISDICTION OF THE PARTICULAR STREET.
 - THE INSIDE PEDESTRIAN CROSSWALK LINES SHALL BE ESTABLISHED BY BISECTING THE INTERSECTION RADII WHERE MARKED (SEE NOTE D).
 - THE WHEELCHAIR RAMP SHALL BE LOCATED SO THAT THE BEGINNING OF THE WHEELCHAIR RAMP WILL BE TWO FEET FROM THE INSIDE PEDESTRIAN CROSSWALK LINE.
 - THE WIDTH OF THE PEDESTRIAN CROSSWALK SHALL BE 10 FEET UNLESS A GREATER WIDTH IS REQUIRED TO ACCOMMODATE THE PEDESTRIAN
 - STOP BARS SHALL BE USED WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN, OR OTHER LEGAL REQUIREMENTS.
 - PARKING SHALL BE ELIMINATED A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
 - ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION. THIS IS AVAILABLE FROM THE SUPERINTENDENT OF DOCUMENTS, U.S GOVERNMENT



City of WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____

Approved Construction Plan
Name _____ Date _____
Planning _____
Traffic _____
Fire _____
Signed: _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

ADDITIONAL STORM WATER NOTES:

- ALL STORM WATER RUNOFF FROM BUILT UPON AREAS (I.E. IMPERVIOUS SURFACES AND ROOF DRAINAGE) TO BE DIRECTED TO THE STORM SEWER COLLECTION SYSTEM (I.E. STORM INLETS OR PONDS) BY SWALES, OVERLAND FLOW, ADDITIONAL GRADING OR LANDSCAPE INLETS.
- CONTRACTOR TO ENSURE THAT STREET PAVEMENT AND CURBING IS PLACED TO DRAIN POSITIVELY TO CURB INLETS AND DRAINAGE STRUCTURES.
- FOR STORM PIPE MATERIAL AND INSTALLATION SEE DETAILS AND NCDOT STANDARD DRAWINGS 300.1 SHEETS 1-3
- ROOF DRAINS SHALL BE SIZED ACCORDING TO THE 2018 INTERNATIONAL PLUMBING CODE AND ALL SHALL CONFORM TO ANY LOCAL REQUIREMENTS
- ANY ROOF DRAIN LOCATIONS SHOWN HERE ARE APPROXIMATE AND MAY BE FIELD ADJUSTED AS LONG AS THE MINIMUM REQUIRED SLOPE IS MAINTAINED.

REVISION		DATE
3	REVISION 1 TRC COMMENTS	4-27-2022
2	REVISION 1 TRC COMMENTS	4-05-2022
1	REVISIONS	02-03-2022

OWNER: OTH REALTY LLC
1701 N. JELLY WADE DR.
WILMINGTON N.C. 28401

DATE: 5-5-2022
SCALE: HORZ. 1"= 20'
DRAWN: gw
CHECKED: gw
PROJECT NO: 4372

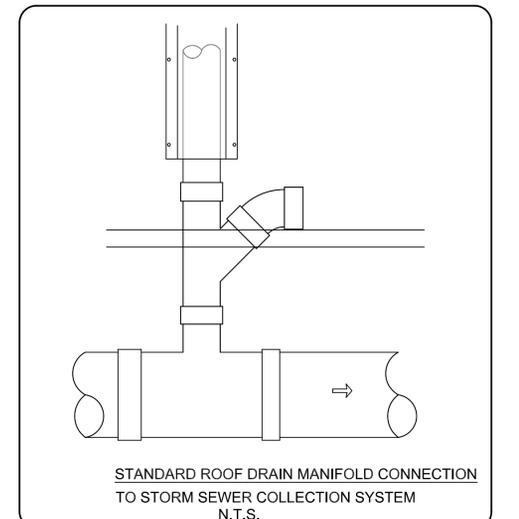
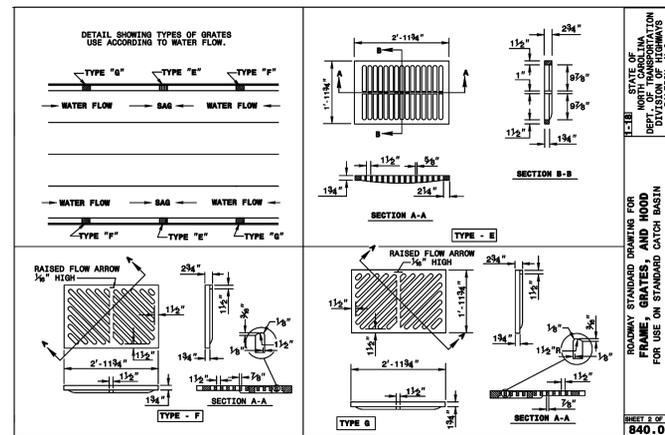
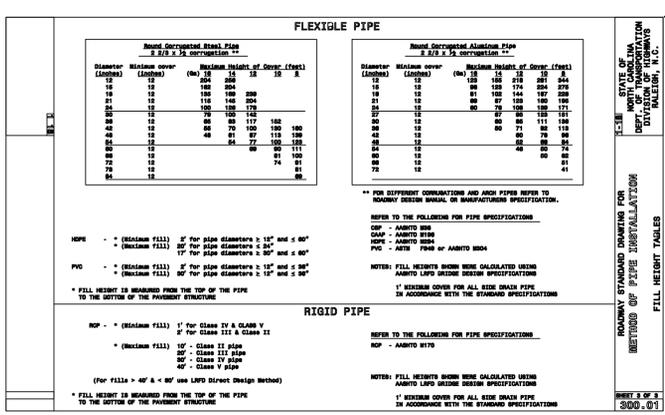
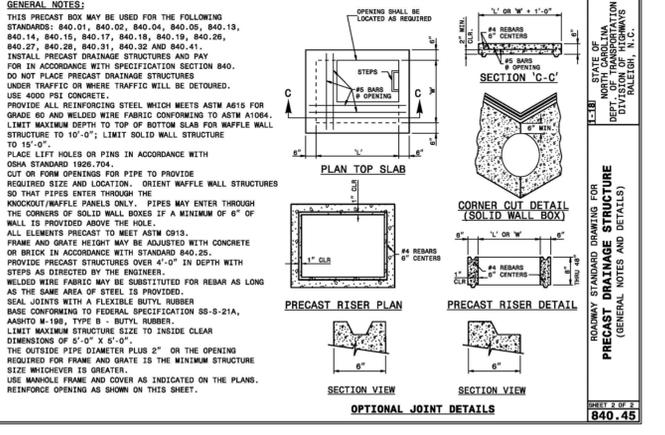
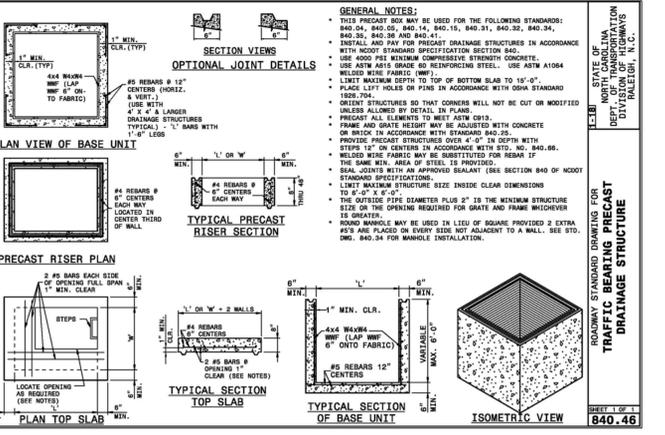
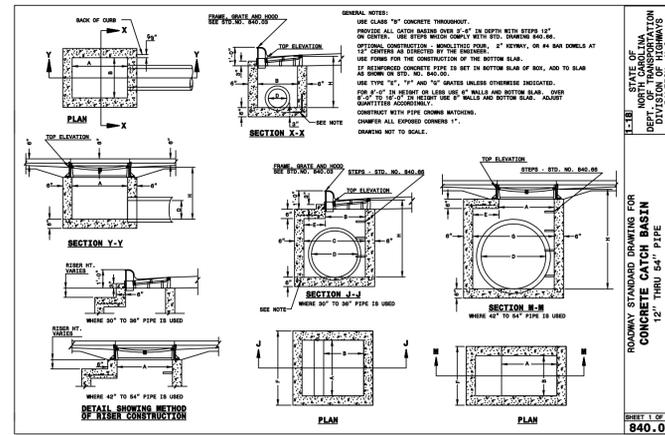
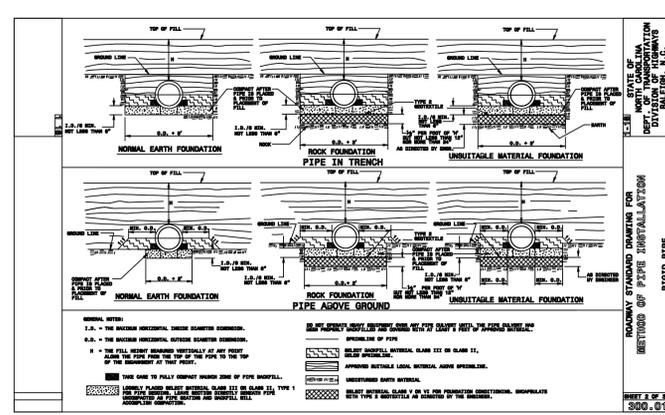
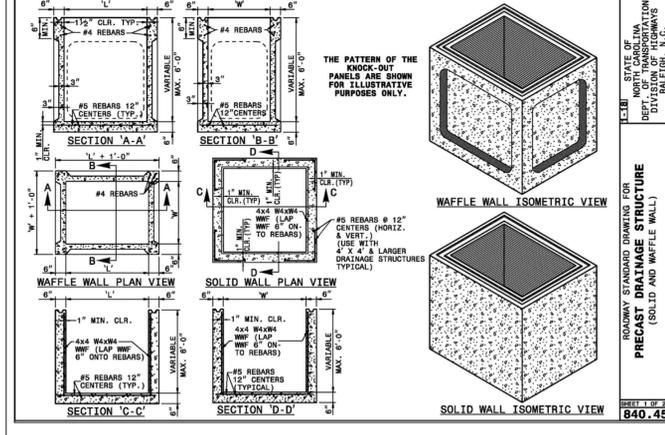
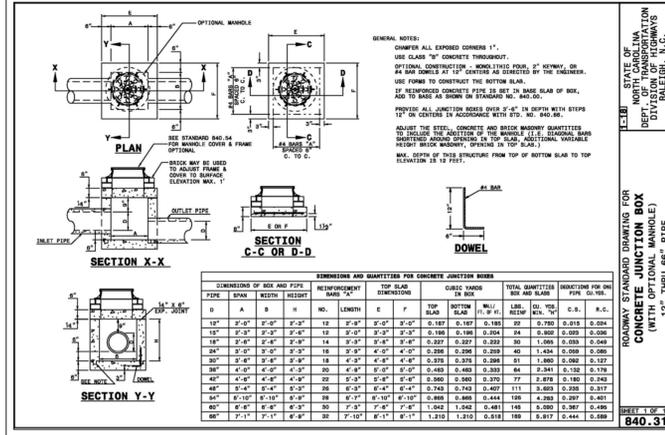
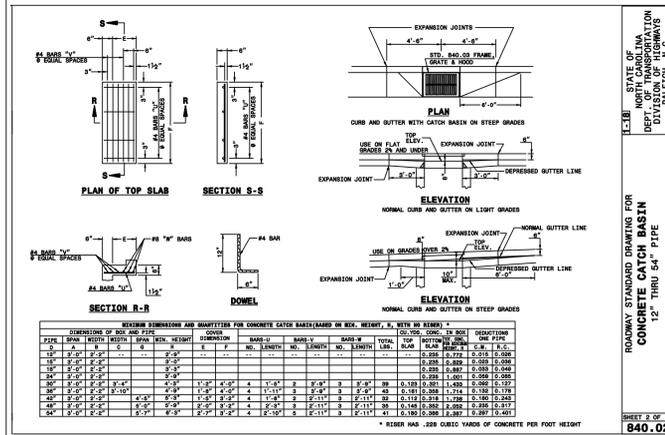
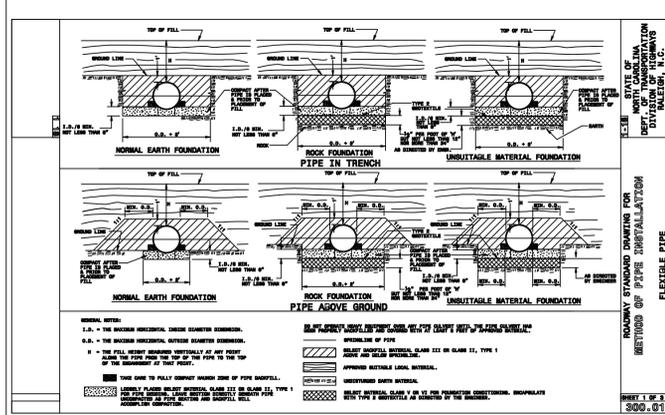
OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY
TYPICAL DETAILS

PRELIMINARY PLAN

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

Sheet No: 2 of 11

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
WILMINGTON, N.C. 28402
LICENSE # 00000002



WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____
Signed: _____

Approved Construction Plan
Name: _____ Date: _____
Planning: _____
Traffic: _____
Fire: _____

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WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

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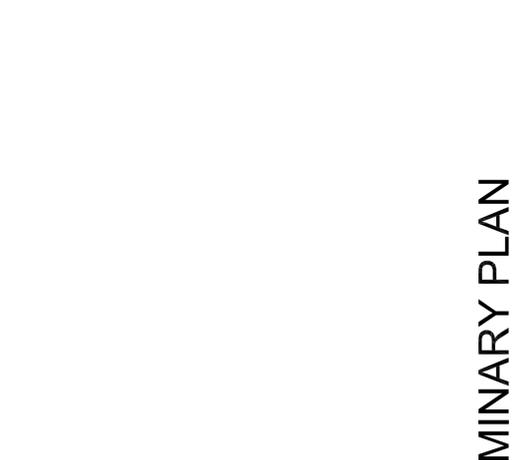
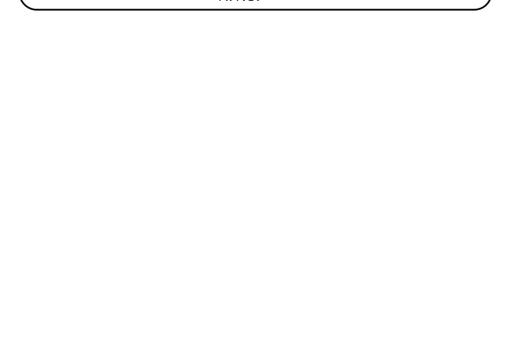
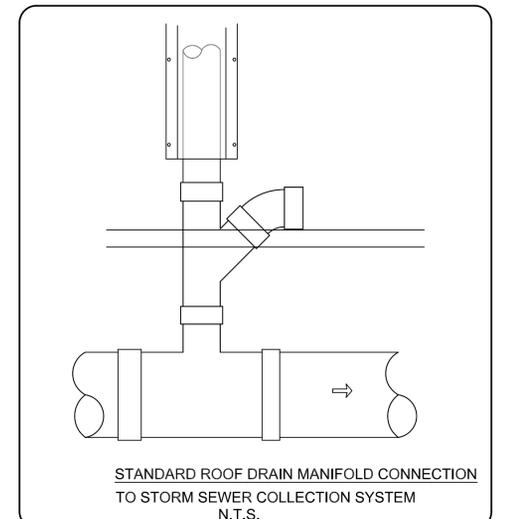
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WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

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Approved Construction Plan
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Fire: _____

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HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
WILMINGTON, N.C. 28401
LICENSE # 000002

NO.	REVISIONS TRC COMMENTS	DATE
3	REVISIONS TRC COMMENTS	4-21-2022
2	REVISIONS TRC COMMENTS	4-05-2022
1	REVISIONS TRC COMMENTS	2-03-2022

OWNER: OTH REALTY, LLC
1701 N.J.E.L. WADE DR.
WILMINGTON N.C. 28401

DATE: 5-5-2022
Scale: HORIZ. 1" = 20'

Drawn: gw
Checked: gw
Project No: 4372

TYPICAL DETAILS
OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY
CAPE FEAR TOWNSHIP, NEW HANOVER COUNTY, NORTH CAROLINA

TYPICAL DETAILS

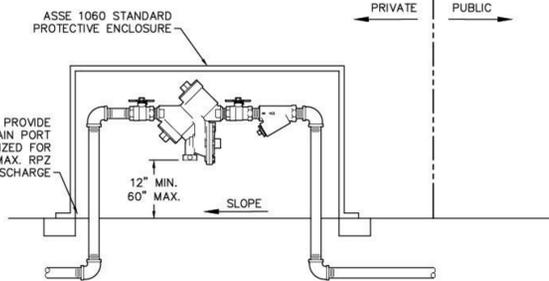
Sheet No: **4**
of **11**

PRELIMINARY PLAN

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD NOTES:

1. ALL PROPOSED ADDITIONS TO THE CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) WATER DISTRIBUTION AND SANITARY SEWER COLLECTION SYSTEMS, AS SHOWN AND SPECIFIED HEREIN, SHALL BE DESIGNED AND CONSTRUCTED TO CONFORM TO STATE RULES AND THE CFPUA'S MINIMUM TECHNICAL STANDARDS. THE CFPUA MINIMUM TECHNICAL STANDARDS ARE CONTAINED IN THE CURRENT DESIGN GUIDANCE MANUAL, MATERIAL SPECIFICATION MANUAL, TECHNICAL SPECIFICATIONS FOR CONSTRUCTION, AND STANDARD DRAWING DETAILS.
2. SEWER MANHOLE INSERTS REQUIRED AT ALL MANHOLES. STAINLESS STEEL MANHOLE INSERTS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
3. WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE 18" INSIDE RIGHT-OF-WAY LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE 18" INSIDE RIGHT-OF-WAY LINE. ALL SEWER SERVICES CONNECTING INTO DUCTILE IRON MAINS SHALL ALSO BE CONSTRUCTED OF DIP.
4. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
5. NO FLEXIBLE COUPLINGS SHALL BE USED.
6. ALL STAINLESS STEEL FASTENERS SHALL BE TYPE 316.
7. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 6 FEET FROM ALL PROPERTY CORNERS.
8. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.
9. UNUSED SERVICES SHALL BE ABANDONED. ABANDONED WATER SERVICES SHALL BE DISCONNECTED FROM MAIN.
10. A MINIMUM OF 10' OF MAIN LINE, 5' UPSTREAM AND 5' DOWNSTREAM SHALL BE REPLACED FOR NEW SEWER SERVICE CONNECTIONS TO EXISTING CLAY GRAVITY SEWER MAINS.
11. A MINIMUM OF 20' OF MAIN LINE, 10' UPSTREAM AND 10' DOWNSTREAM SHALL BE REPLACED FOR NEW CUT IN MANHOLES ON EXISTING CLAY GRAVITY SEWER MAINS.
12. PROVIDE A MINIMUM DISTANCE OF SIX (6) INCHES BETWEEN EDGE OF MANHOLE CORE HOLES AND MANHOLE BARREL JOINTS. PROVIDE A MINIMUM DISTANCE OF SIX (6) INCHES BETWEEN EDGES OF CORE HOLES. CORING THE MANHOLE CONE IS NOT PERMITTED.
13. WATER MAIN AND FORCE MAIN PIPE INSTALLED BY OPEN CUT SHALL BE BURIED AT A MINIMUM OF THREE (3) FEET AND A MAXIMUM OF FIVE (5) FEET BELOW FINISHED GRADE. DEPTHS GREATER THAN FIVE (5) FEET MUST BE APPROVED BY CFPUA.
14. ALL MANHOLE MAIN LINE AND SERVICE PIPING TO BE INSTALLED AT A MINIMUM OF CROWN TO CROWN OF THE LARGEST DIAMETER PIPE.

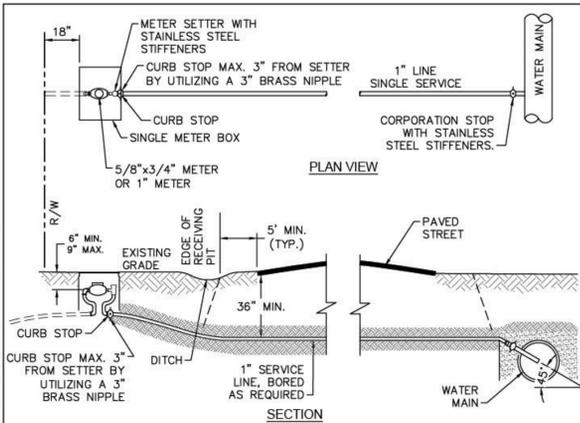
<p>DETAIL: STANDARD NOTES (REQUIRED ON ALL PLAN AND PROFILE SHEETS)</p> <p>SCALE: NOT TO SCALE</p> <p>CFPUA DETAIL DATE: 01/01/2023</p>	<p>CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560</p> <p>Stewardship. Sustainability. Service.</p>	<p>DETAIL NO: WS-14</p> <p>SHEET NO: -</p>
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- NOTES:**
1. MUST BE MIN. 36" AWAY FROM ANY ELECTRICAL PANEL.
 2. VALVE REQUIRED DOWNSTREAM OF BACKFLOW ASSEMBLY.
 3. VERTICAL INSTALLATION SHALL BE DESIGNED AND SUBMITTED TO CFPUA EMD FOR APPROVAL.
 4. LOCATE AS NEAR TO RIGHT-OF-WAY AS POSSIBLE.
 5. MUST COMPLETE CFPUA'S BACKFLOW INSTALLATION FORM. CONTACT COMMUNITY COMPLIANCE AT 910-332-6558 OR VISIT WWW.CFPUA.ORG/COMMUNITYCOMPLIANCE AND COMPLETE THE ONLINE FORM.
 6. ONLY IN-LINE TESTABLE ASSEMBLIES APPROVED BY THE USC FOUNDATION FOR CROSS CONNECTION CONTROL OR ASSE SHALL BE ACCEPTED.

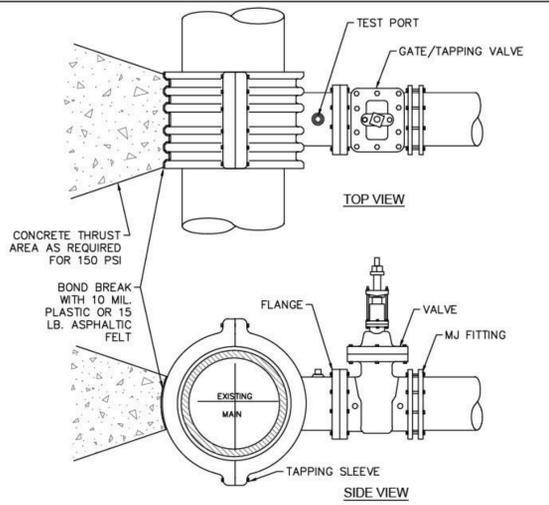
OUTDOOR HORIZONTAL INSTALLATION

<p>DETAIL: REDUCED PRESSURE PRINCIPLE ASSEMBLY</p> <p>SCALE: NOT TO SCALE</p> <p>CFPUA DETAIL DATE: 01/01/2023</p>	<p>CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560</p> <p>Stewardship. Sustainability. Service.</p>	<p>DETAIL NO: EM-1</p> <p>SHEET NO: -</p>
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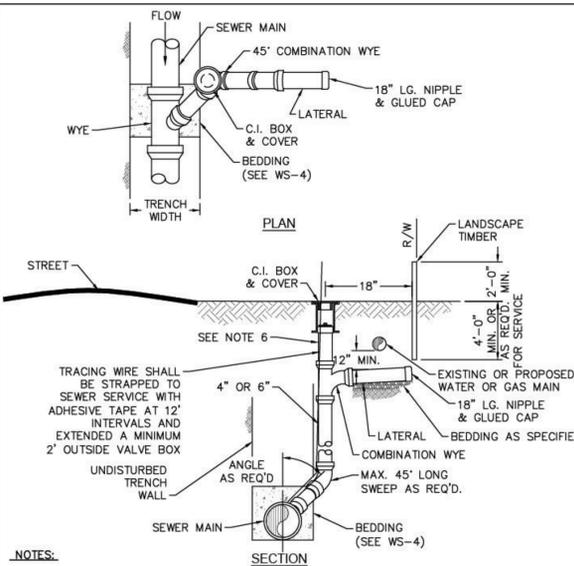
- NOTES:**
1. NO JOINT SHALL BE INSTALLED BETWEEN THE MAIN SERVICE TAP AND THE METER STOP. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
 2. SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY.
 3. METER BOXES SUBJECT TO TRAFFIC LOADS SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS.
 4. WATER SERVICE LINE SHALL BE PERPENDICULAR TO MAIN AND TERMINATE 18" WITHIN RIGHT-OF-WAY LINE.
 5. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.
 6. SERVICE PIPING AND METER SETTER TO BE CENTERED IN THE METER BOX.
 7. TRACING WIRE SHALL BE INSTALLED WITH ADHESIVE TAPE AT 12' INTERVALS AND EXTEND A MINIMUM OF 2' OUTSIDE OF METER BOX PER CFPUA DETAIL WS-6.

<p>DETAIL: SINGLE WATER SERVICE CONNECTION - LONG-SIDE</p> <p>SCALE: NOT TO SCALE</p> <p>CFPUA DETAIL DATE: 04/25/2023</p>	<p>CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560</p> <p>Stewardship. Sustainability. Service.</p>	<p>DETAIL NO: W-2</p> <p>SHEET NO: -</p>
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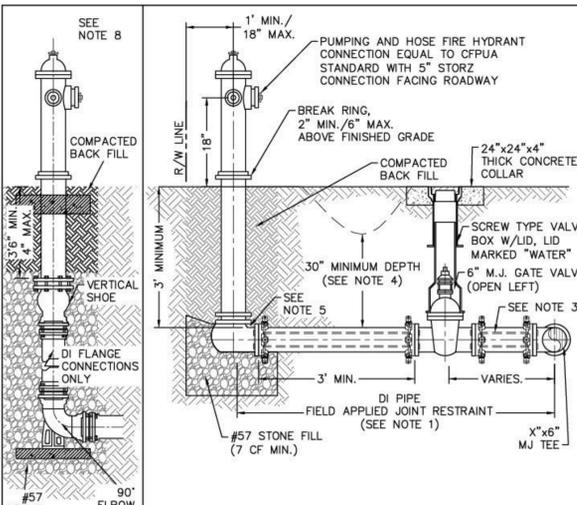
- NOTES:**
1. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
 2. PIPE & FITTING TO BE WRAPPED IN 10 MIL. PLASTIC OR 15 LB. ASPHALTIC FELT PRIOR TO THRUST BLOCK BEING POURED.
 3. TEST PRESSURE SHALL NOT BE APPLIED FOR A MINIMUM OF 7 DAYS AFTER THRUST BLOCK PLACEMENT.
 4. BRANCH SHALL NOT EQUAL RUN DIAMETER UNLESS APPROVED BY CFPUA ENGINEERING.

<p>DETAIL: TAPPING SLEEVE AND VALVE ASSEMBLY (4"-24")</p> <p>SCALE: NOT TO SCALE</p> <p>CFPUA DETAIL DATE: 01/01/2023</p>	<p>CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560</p> <p>Stewardship. Sustainability. Service.</p>	<p>DETAIL NO: WS-9</p> <p>SHEET NO: -</p>
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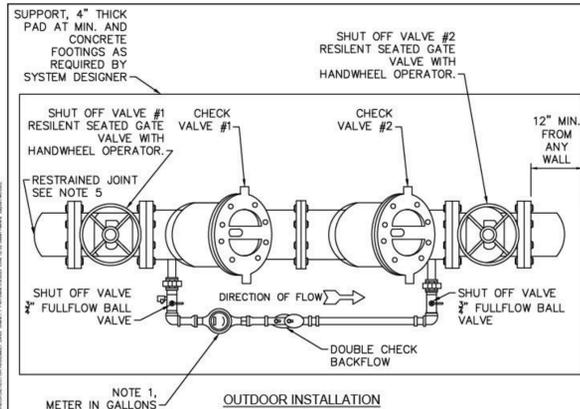
- NOTES:**
1. SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
 2. ALL SERVICES CONNECTING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF DIP, WITH PROTECTIVE LINING.
 3. CLEANOUTS SHALL BE LOCATED A MINIMUM OF 6 FEET FROM ALL PROPERTY CORNERS.
 4. FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR CONNECTION TO MAIN.
 5. A MINIMUM PIPING LENGTH OF 1' 6" SHALL BE USED BETWEEN FITTINGS.
 6. 6" SERVICES SHALL HAVE A 6" X 4" CONCENTRIC REDUCER INSTALLED ABOVE THE COMBINATION PRIOR TO ENTERING THE CAST IRON BOX.

<p>DETAIL: SEWER SERVICE CONNECTION - SHORT-SIDE</p> <p>SCALE: NOT TO SCALE</p> <p>CFPUA DETAIL DATE: 01/01/2023</p>	<p>CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560</p> <p>Stewardship. Sustainability. Service.</p>	<p>DETAIL NO: S-9</p> <p>SHEET NO: -</p>
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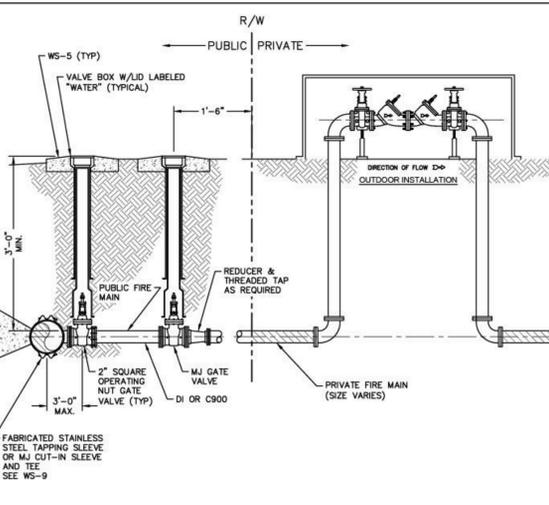
- NOTES:**
1. JOINT RESTRAINT SYSTEMS SHALL BE WEDGE ACTION STYLE FOR DI.
 2. WHEN HYDRANT LEGS REQUIRE FULL LENGTH PIPE SECTIONS, OVER BELL RESTRAINT SYSTEM SHALL HAVE 316 STAINLESS STEEL HARNESS AND FASTENERS.
 3. CONTINUOUS 316 STAINLESS STEEL RODS (TEE TO VALVE AND VALVE TO HYDRANT) MAY BE USED WITH 316 STAINLESS STEEL MJ T-BOLT AND GASKET KITS, AS AN ALTERNATIVE.
 4. HYDRANT AND VALVE SHALL BE PLACED OUTSIDE DITCH LIMITS.
 5. WEEP HOLES OPEN AND UNBLOCKED TO DRAIN.
 6. MJ TEE SHALL BE RESTRAINED ON EACH SIDE OF MAIN PLUS MAIN VALVES, FITTING, OR JOINTS WITHIN 10'-FEET OF MJ TEE.
 7. TRACING WIRE SHALL EXTEND ALONG HYDRANT LATERAL AND UP TO FINISHED GRADE WITH 2'-FEET EXTENDED ABOVE THE BREAK RING OF HYDRANT.
 8. HYDRANT TO UTILIZE A VERTICAL SHOE WHEN INSTALLED 5' IN DEPTH OR GREATER.

<p>DETAIL: FIRE HYDRANT ASSEMBLY</p> <p>SCALE: NOT TO SCALE</p> <p>CFPUA DETAIL DATE: 01/01/2023</p>	<p>CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560</p> <p>Stewardship. Sustainability. Service.</p>	<p>DETAIL NO: W-9</p> <p>SHEET NO: -</p>
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- NOTES:**
1. FIRE SERVICE BACKFLOW ASSEMBLIES MUST BE CFPUA APPROVED.
 2. ABOVE GROUND DOUBLE CHECK DETECTOR ASSEMBLIES (DCDA) PER CFPUA STANDARDS.
 3. 4"-10" DCDA SHALL BE SUPPORTED WITH ADEQUATE SUPPORT PEDESTAL(S).
 4. OUTDOOR INSTALLATION SHALL HAVE A PROTECTIVE ENCLOSURE PER CFPUA STANDARDS.
 5. MAIN LINE 3" BRASS, K-COPPER OR GALVANIZED PIPE, 4" TO 10" DIP. RESTRAINED JOINTS SHALL BE FLANGED OR APPROVED EQUAL.
 6. CFPUA APPROVED 3" - 10" DCDA INCLUDES SHUT OFF VALVES #1 AND #2. AS PART OF THE ASSEMBLY, NO SUBSTITUTIONS SHALL BE PERMITTED.
 7. TEST COCK #1 SHALL BE UPSTREAM OF SHUT OFF VALVE #1 AND IS PART OF THE APPROVED ASSEMBLY.
 8. MUST COMPLETE CFPUA'S BACKFLOW INSTALLATION FORM. CONTACT COMMUNITY COMPLIANCE AT 910-332-6558 OR VISIT WWW.CFPUA.ORG/COMMUNITYCOMPLIANCE AND COMPLETE THE ONLINE FORM.
 9. ONLY IN-LINE TESTABLE ASSEMBLIES APPROVED BY THE USC FOUNDATION FOR CROSS CONNECTION CONTROL OR ASSE SHALL BE ACCEPTED.

<p>DETAIL: FIRE SERVICE DOUBLE CHECK DETECTOR ASSEMBLY</p> <p>SCALE: NOT TO SCALE</p> <p>CFPUA DETAIL DATE: 01/01/2023</p>	<p>CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560</p> <p>Stewardship. Sustainability. Service.</p>	<p>DETAIL NO: EM-5</p> <p>SHEET NO: -</p>
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- NOTES:**
1. A GATE VALVE IS REQUIRED AT THE CFPUA FIRE MAIN TAP LOCATION.
 2. WHEN THE FIRE MAIN IS FROM OPPOSITE SIDE OF NC-DOT ROAD OR CITY STREET, A SECOND VALVE IS REQUIRED 18" INSIDE PUBLIC R/W.
 3. IF TAPPING VALVE IS LESS THAN 5'-FEET FROM R/W THEN SECOND VALVE AT R/W IS NOT REQUIRED.

<p>DETAIL: FIRE MAIN CONNECTION</p> <p>SCALE: NOT TO SCALE</p> <p>CFPUA DETAIL DATE: 01/01/2023</p>	<p>CAPE FEAR PUBLIC UTILITY AUTHORITY 235 GOVERNMENT CENTER DRIVE WILMINGTON, NC 28403 OFFICE: (910)332-6560</p> <p>Stewardship. Sustainability. Service.</p>	<p>DETAIL NO: W-10</p> <p>SHEET NO: -</p>
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<p>MARKED FOR UTILITY CONSTRUCTION</p>		<p>5/11/2023</p>	<p>DATE</p>
<p>REVISIONS: TRC COMMENTS</p>		<p>4-21-2022</p>	<p>DATE</p>
<p>REVISIONS: TRC COMMENTS</p>		<p>4-05-2022</p>	<p>DATE</p>
<p>REVISIONS: TRC COMMENTS</p>		<p>2-03-2022</p>	<p>DATE</p>

TYPICAL DETAILS

OFF THE HOOK YACHT SALES

N.E. CAPE FEAR RIVER FACILITY

OWNER: OTH REALTY, LLC
1701 N.J.E.L. WADE DR.
WILMINGTON N.C. 28401

DATE: 5-5-2022
Scale: HORZ.: 1"= 20'
Drawn: gw
Checked: gw
Project No: 4372

TYPICAL DETAILS

City of WILMINGTON, NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____
Signed: _____

Approved Construction Plan
Name: _____ Date: _____

Planning _____
Traffic _____
Fire _____

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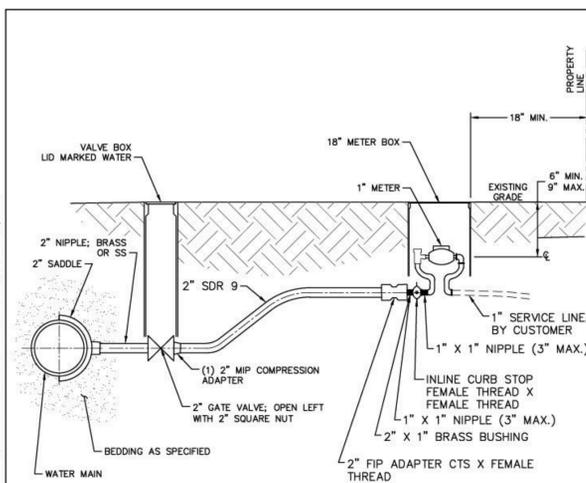
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- ALL SEWER SERVICES CONNECTING INTO DUCTILE IRON MAINS SHALL ALSO BE CONSTRUCTED OF DIP.
- MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
- NO FLEXIBLE COUPLINGS SHALL BE USED.
- ALL STAINLESS STEEL FASTENERS SHALL BE TYPE 316.
- CLEANOUTS SHALL BE LOCATED A MINIMUM OF 6 FEET FROM ALL PROPERTY CORNERS.
- WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.
- UNUSED SERVICES SHALL BE ABANDONED. ABANDONED WATER SERVICES SHALL BE DISCONNECTED FROM MAIN.
- A MINIMUM OF 10' OF MAIN LINE, 5' UPSTREAM AND 5' DOWNSTREAM SHALL BE REPLACED FOR NEW SEWER SERVICE CONNECTIONS TO EXISTING CLAY GRAVITY SEWER MAINS.
- A MINIMUM OF 20' OF MAIN LINE, 10' UPSTREAM AND 10' DOWNSTREAM SHALL BE REPLACED FOR NEW CUT IN MANHOLES ON EXISTING CLAY GRAVITY SEWER MAINS.
- PROVIDE A MINIMUM DISTANCE OF SIX (6) INCHES BETWEEN EDGE OF MANHOLE CORE HOLES AND MANHOLE BARREL JOINTS. PROVIDE A MINIMUM DISTANCE OF SIX (6) INCHES BETWEEN EDGES OF CORE HOLES. CORING THE MANHOLE CONE IS NOT PERMITTED.
- WATER MAIN AND FORCE MAIN PIPE INSTALLED BY OPEN CUT SHALL BE BURIED AT A MINIMUM OF THREE (3) FEET AND A MAXIMUM OF FIVE (5) FEET BELOW FINISHED GRADE. DEPTHS GREATER THAN FIVE (5) FEET MUST BE APPROVED BY CFPUA.
- ALL MANHOLE MAIN LINE AND SERVICE PIPING TO BE INSTALLED AT A MINIMUM OF CROWN TO CROWN OF THE LARGEST DIAMETER PIPE.

DETAIL: **STANDARD NOTES**
(REQUIRED ON ALL PLAN AND PROFILE SHEETS)
SCALE: NOT TO SCALE
CFPUA DETAIL DATE: 01/01/2023



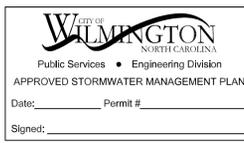
DETAIL NO: **WS-14**
SHEET NO: -



DETAIL: **2" TO 1" SERVICE REDUCTION**
SCALE: NOT TO SCALE
CFPUA DETAIL DATE: 01/01/2023



DETAIL NO: **W-12**
SHEET NO: -



Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

NO.	REVISIONS	DATE
4	MARKED FOR UTILITY CONSTRUCTION	5/11/2023
3	REVISIONS TRC COMMENTS	4-21-2022
2	REVISIONS TRC COMMENTS	4-05-2022
1	REVISIONS TRC COMMENTS	2-03-2022

TYPICAL DETAILS
OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY
CAPE FEAR TOWNSHIP, NEW HANOVER COUNTY, NORTH CAROLINA

OWNER: OTH REALTY, LLC
1701 N.J.E.L. WADE DR.
WILMINGTON N.C. 28401

DATE: 5-5-2022
SCALE: HORZ.: 1"= 20'

Drawn: gw
Checked: gw
Project No: 4372

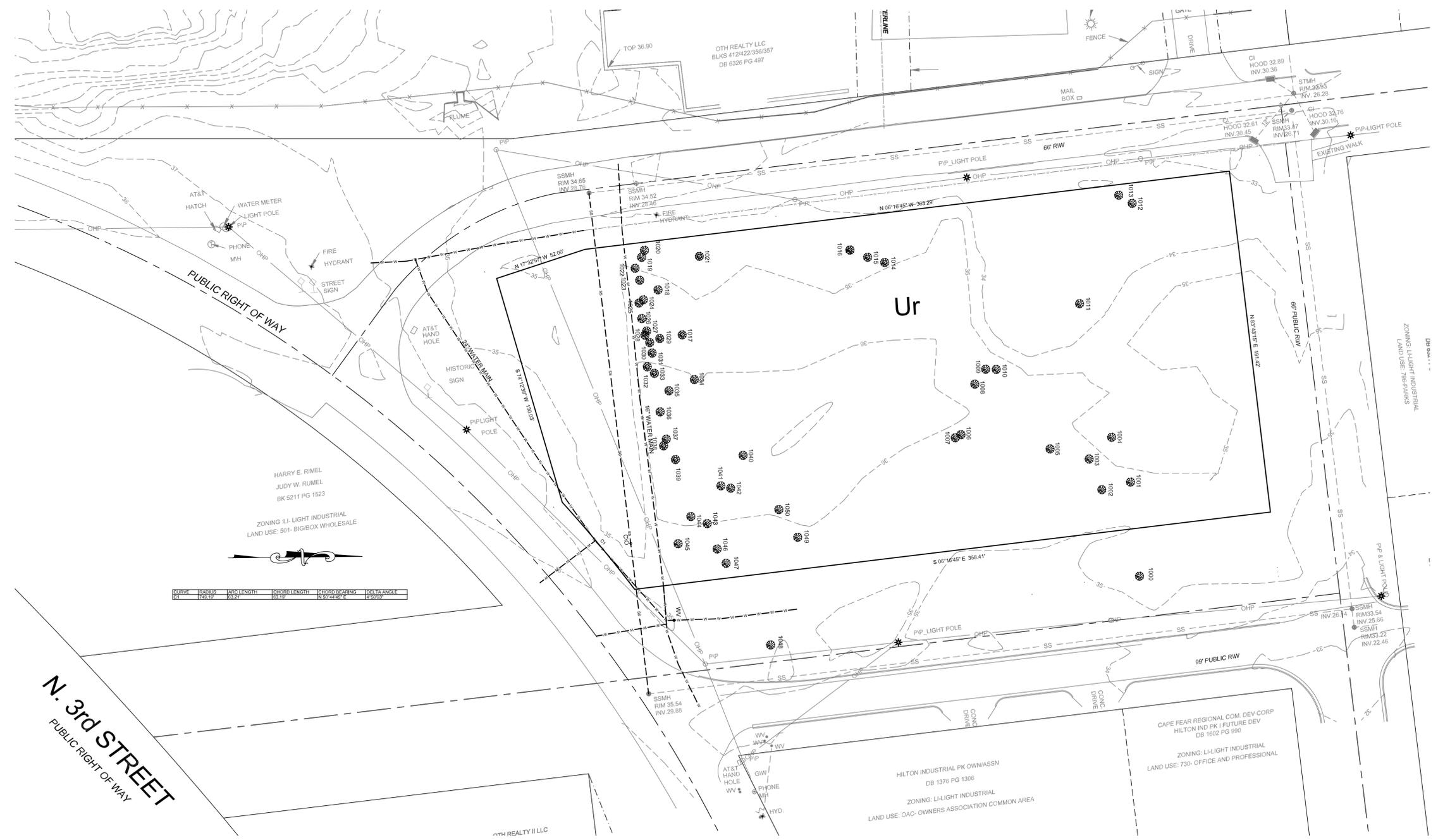
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FINAL PLANS FOR CONSTRUCTION

TYPICAL DETAILS

Sheet No: **6**
OF **11**



CURVE	RAIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	748.19'	83.21'	83.19'	N 50°44'45" E	2.9069°

N. 3rd STREET
 PUBLIC RIGHT OF WAY

1000.38" OAK	1036.15" OAK	1082.22.5" OAK	1121.17" GUM
1001.37" OAK	1037.14.5" OAK	1083.20.5" OAK	1122.16" HARDWOOD
1002.2" MAG	1038.14" OAK	1084.9" OAK	1123.10" HARDWOOD
1003.36" OAK	1039.20" OAK	1085.13" OAK	1124.50" HARDWOOD
1004.20.5" OAK	1040.19" OAK	1086. TRIPPLE 11" 11" 10" HARD W.	1125.9" HARDWOOD
1005.30" OAK	1041.25" OAK	1087.11" HARDWOOD	1126. TRIPPLE 8.5" HARDWOOD
1006.6" HARDWOOD	1042.20" OAK	1088.9" HARDWOOD	1127.10" HARDWOOD
1007. TWIN 9" 10" HARDWOOD	1043.21" OAK	1089.10" HARDWOOD	1128.12" HARDWOOD
1008.9.5" HARDWOOD	1044.24" OAK	1090.20" HARDWOOD	1129.15" HARDWOOD
1009.12" HARDWOOD	1045.32" OAK	1091.15" HARDWOOD	1130.15" HARDWOOD
1010.8" HARDWOOD	1046.20.5" OAK	1092.24" HARDWOOD	1131.9" HARDWOOD
1011.8.5" MAG	1047.18.5" OAK	1093. TWIN 12" 10" HARD W.	1132.9" HARDWOOD
1012.10" HARDWOOD	1048.38" OAK	1094.14" HARDWOOD	1133.13" HARDWOOD
1013. TWIN 8" 7" HARDWOOD	1049.18.5" HARDWOOD	1095.25" HARDWOOD	1134. TWIN 21" 16" HARDWOOD
1014.9" HARDWOOD	1050.14" HARDWOOD	1096.23" HARDWOOD	1135.24.5" HARDWOOD
1015.9" HARDWOOD	1051.24" OAK	1097.15" HARDWOOD	1136.22" HARDWOOD
1016.10" HARDWOOD	1052.18.5" OAK	1098.18" GUM	1137.15" HARDWOOD
1017.15" OAK	1053.10" OAK	1099.10.5" OAK	1138.15" OAK
1018.19" OAK	1054.17" OAK	1100.34.5" OAK	1140.30.5" HARDWOOD
1019.18" OAK	1055.11.5" OAK	1101.18.5" HARDWOOD	1141.9" HARDWOOD
1020.10" OAK	1056.9.5" OAK	1102.14" OAK	1142.11" HARDWOOD
1021.8.5" HARDWOOD	1057.14.5" OAK	1103.15" OAK	1143. TWIN 9.5" 8" GUM
1022.17" OAK	1058.18.5" OAK	1104. TWIN 22.5" 12.5" OAK	1144.9" HARDWOOD
1023.22" OAK	1059.16" OAK	1105.19" OAK	
1024. TWIN 14" 12" OAK	1061.27" OAK	1106.12.5" OAK	
1025.22" OAK	1062.16" OAK	1107.8.5" OAK	
1026.13.5" OAK	1063.10" HARDWOOD	1110.13.5" HARDWOOD	
1027.8.5" OAK	1064.20" OAK	1111.34" HARDWOOD	
1028.17.5" OAK	1066.19" HARDWOOD	1112.38" HARDWOOD	
1029.11.5" OAK	1075. TWIN 14" 9" OAK	1113. TWIN 9.5" 8" HARD W.	
1030.7" MAG	1076.8" OAK	1114. TRIPPLE 7.5" 11" 9" HARD W.	
1031.23" OAK	1077.15" OAK	1115.9" HARDWOOD	
1032.20.5" OAK	1078.12" OAK	1119.12.5" HARDWOOD	
1033. TWIN 12" 19.5" OAK	1079.9" OAK	1117.5" HARDWOOD	
1034.9.5" OAK	1080.8" OAK	1118.24" HARDWOOD	
1035.24" OAK	1081.20.5" OAK	1119.10" HARDWOOD	

WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: _____ Permit # _____
 Signed: _____

Approved Construction Plan

Name	Date
Planning _____	_____
Traffic _____	_____
Fire _____	_____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



NO.	REVISIONS / TRC COMMENTS	DATE
3	REVISIONS / TRC COMMENTS	4-21-2022
2	REVISIONS / TRC COMMENTS	4-05-2022
1	REVISIONS / TRC COMMENTS	2-03-2022

EXISTING CONDITIONS

OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY

OWNER: OTH REALTY LLC
 1701 N. J. L. WADE DR.
 WILMINGTON N.C. 28401

Date: 5-5-2022
 Scale: HORZ: 1" = 30'
 Drawn: gw
 Checked: gw
 Project No: 4372

EXISTING CONDITIONS

PRELIMINARY PLAN

Sheet No: **7**
 of **11**

NO.	DATE	REVISIONS
5	5-16-2023	PARKING REVISION
4	10-4-2022	ACCESSIBLE PATHS DEMONSTRATED
3	4-21-2022	REVISIONS TRIC COMMENTS
2	4-05-2022	REVISIONS TRIC COMMENTS
1	2-03-2022	REVISIONS TRIC COMMENTS

**OFF THE HOOK YACHT SALES
 N.E. CAPE FEAR RIVER FACILITY**

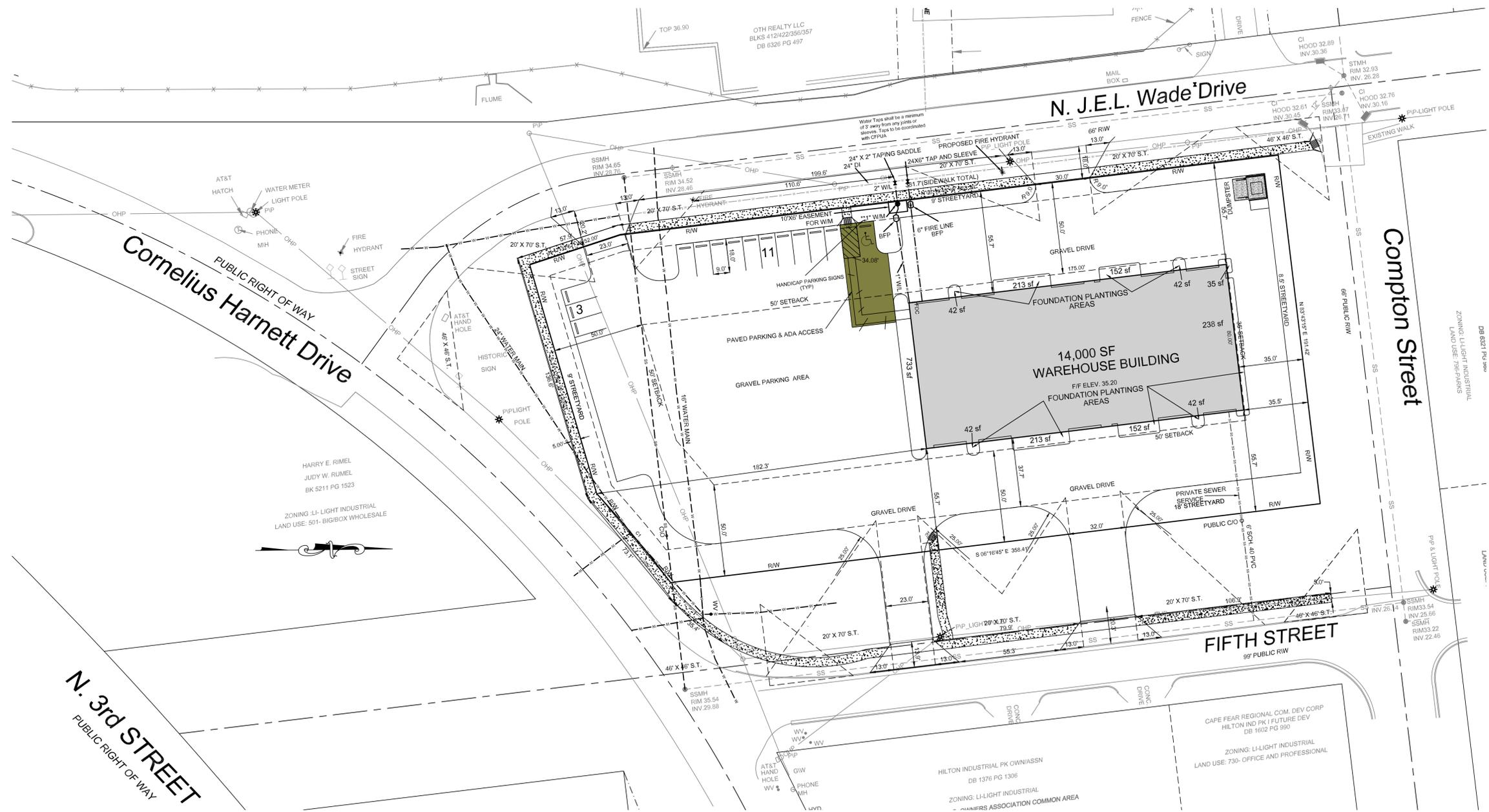
OWNER: OTH REALTY LLC
 1701 N.J.E.L. WADE DR.
 WILMINGTON, N.C. 28401

Date: 5-5-2022
 Scale: HORZ: 1" = 30'
 Drawn: gw
 Checked: AHG
 Project No: 4372

SITE PLAN

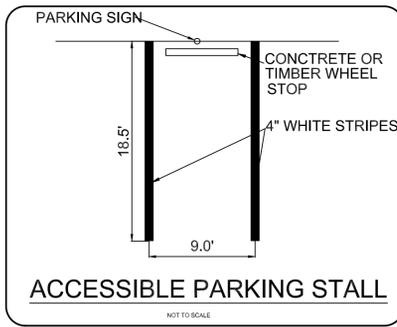
PRELIMINARY PLAN

Sheet No: 8
 of 11



FOUNDATION PLANTINGS
 NORTH BUILDING FACADE 80' X 21' = 1660 (SF) X .12 = 235.2 (SF)
 SOUTH BUILDING FACADE 80' X 21' = 1660 (SF) X .12 = 235.2 (SF)
 EAST BUILDING FACADE 1960 (SF) X .12 = 441 (SF)
 WEST BUILDING FACADE 1960 (SF) X .12 = 441 (SF)
 TOTAL FOUNDATION PLANTING REQUIRED = 1,352.4 (SF)
 FOUNDATION PLANTING SHOWN = 2,096 (SF)

SITE DATA
 PARCEL ID. NO. R04805-023-001-000
 OWNER: OTH REALTY II LLC
 1.74 ACRES TOTAL TRACT
 ZONED LI-LIGHT INDUSTRIAL (WITHIN A SPECIAL HIGHWAY OVERLAY DISTRICT)
 PROPOSED USE: WAREHOUSING
 BUILDING CONSTRUCTION TYPE: TYPE II-B
 BUILDING LOT COVERAGE 18.5%
 PROPOSED BLDG. HEIGHT ONE STORY LESS THAN 45'
 MINIMUM FRONT SETBACK 50'
 MINIMUM REAR SETBACK 0' (35' ABUTTING RESIDENTIAL)
 MINIMUM INTERIOR SIDE SETBACK 0' (20' ABUTTING RESIDENTIAL)
 MINIMUM CORNER LOT SIDE SETBACK 50'
 MAX. HEIGHT 35' (ADDITIONAL HEIGHT REQUIRES GRATER SETBACKS)
 STREET YARD 18' AND 9'
 SOIL TYPES INCLUDE U₁ (URBAN LAND) AND K_u (URBAN LAND COMPLEX)
 CAMA LAND TYPE (URBAN)
 PROPOSED BLDG. SIZE 14,000 S.F.
 PARCEL AREA 1.73 ACRES (75,528 S.F.)



WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: _____ Permit # _____
 Signed: _____

Approved Construction Plan

Name	Date
Planning	_____
Traffic	_____
Fire	_____

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



IMPERVIOUS CALCULATIONS

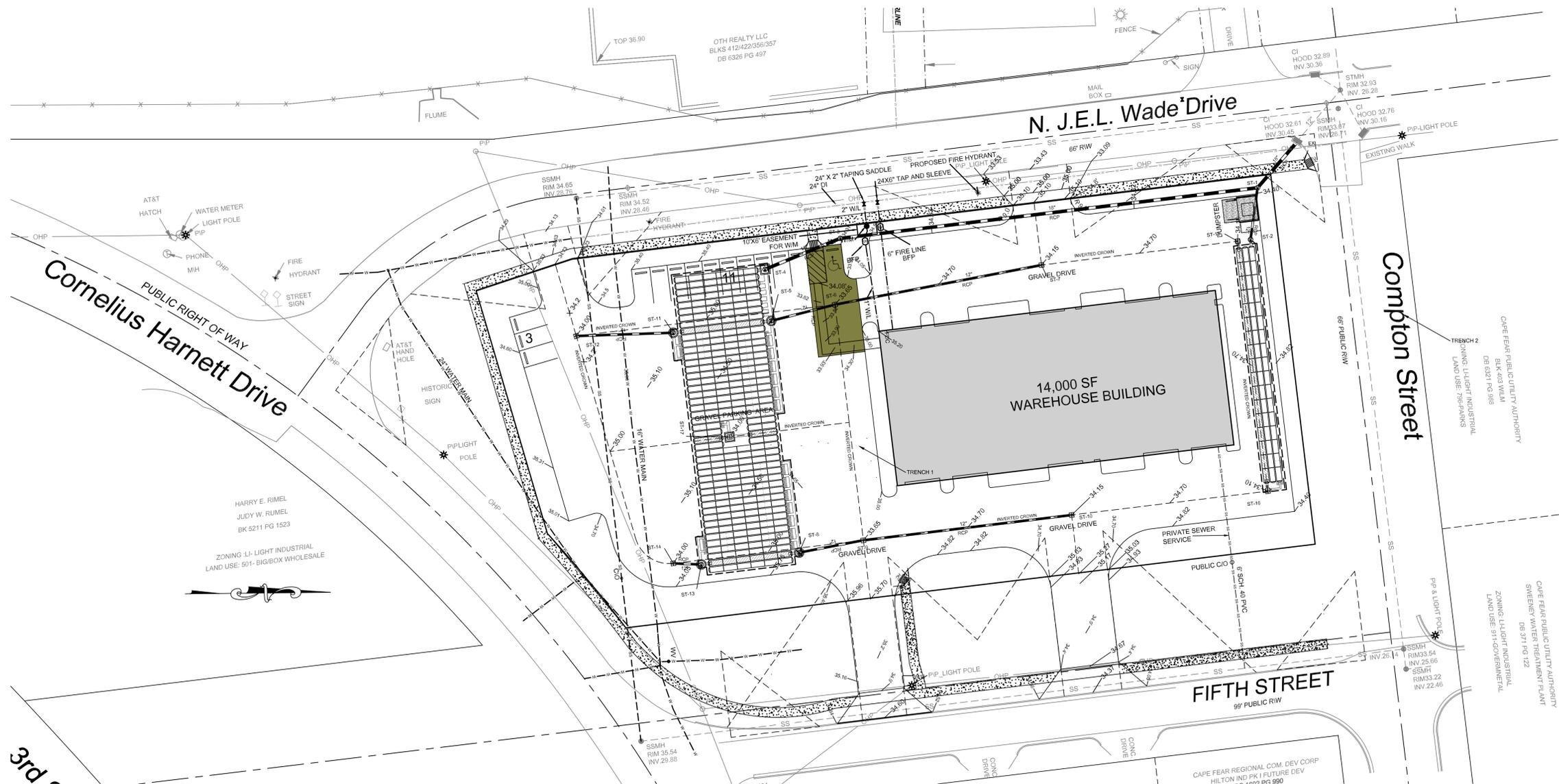
Category	Area (SF)	Total (SF)
BUILDING	14000	64,134
PARKING AND DRIVES	47792	
SIDEWALKS	142	
FUTURE	2,200	
TOTAL PROPOSED IMPERVIOUS (NOW AND FUTURE)	64,134	

BUILDING LOT COVERAGE

Category	Area (SF)	Percentage
PROPOSED BLDG.	14000	18.5%
TOTAL TRACT AREA	75588	
BUILDING LOT COVERAGE	18.5%	

TRIP GENERATION CHART

LAND USE	ITE CODE	AM PEAK HOURS TRIPS=23		PM PEAK HOUR TRIPS=28	
		ENTER	EXIT	ENTER	EXIT
SPECIAL TRADE CONTRACTOR					
BOAT REPAIR					
14,000 SF PROPOSED	180	143	17 6	9 19	
CURRENT LAND USE	958				



HARRY E. RIMEL
 JUDY W. RUMEL
 BK 5211 PG 1523
 ZONING LI-LIGHT INDUSTRIAL
 LAND USE: 901-BIGBOX WHOLESALE



CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: _____ Permit # _____
 Signed: _____

Approved Construction Plan
 Name _____ Date _____
 Planning _____
 Traffic _____
 Fire _____

For each open utility cut out of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



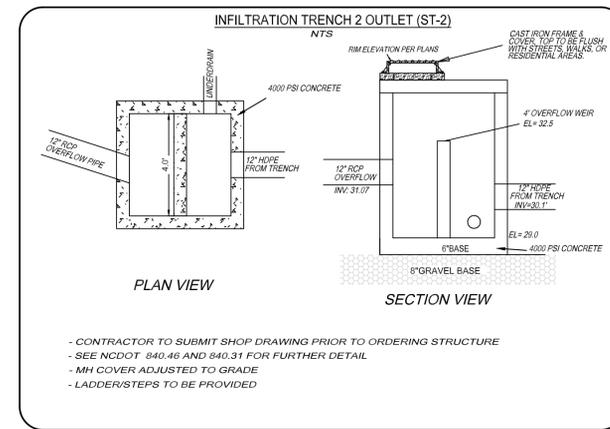
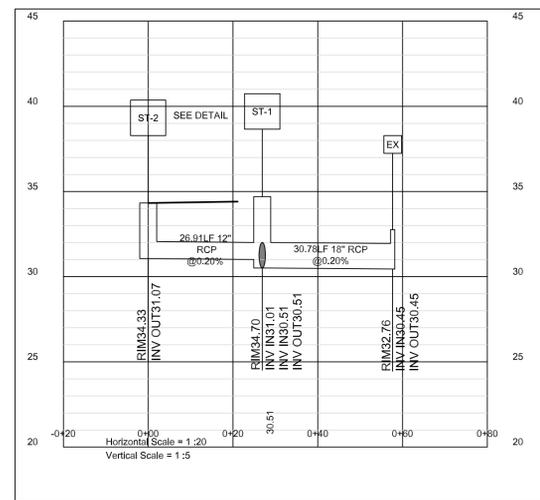
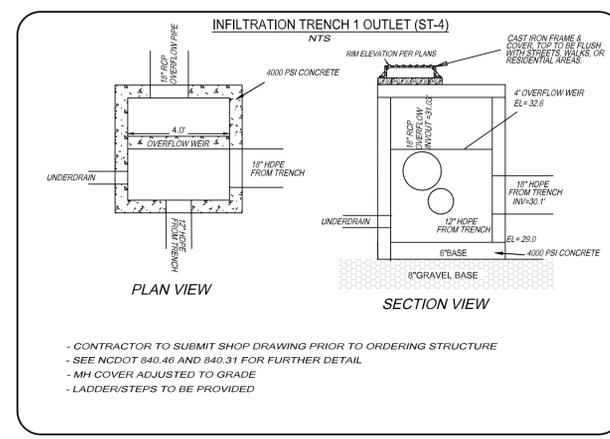
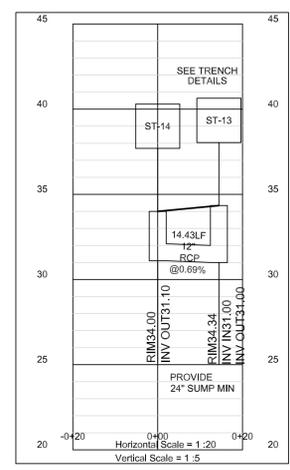
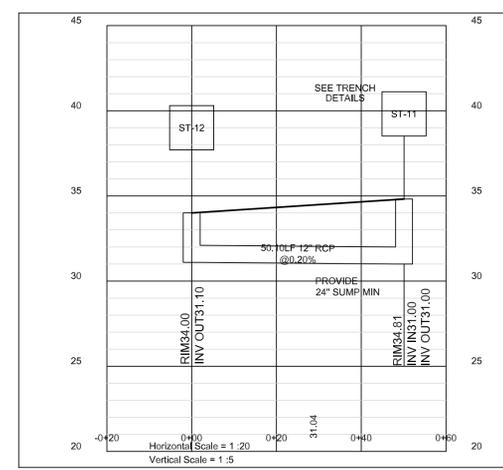
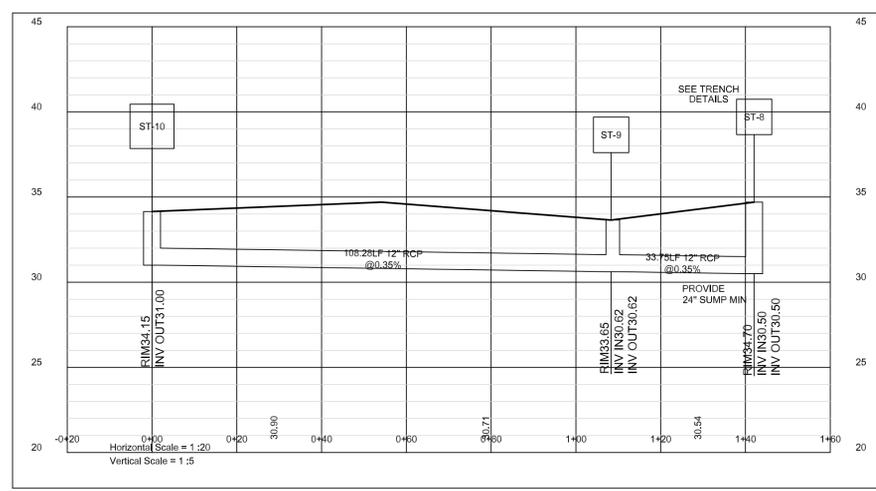
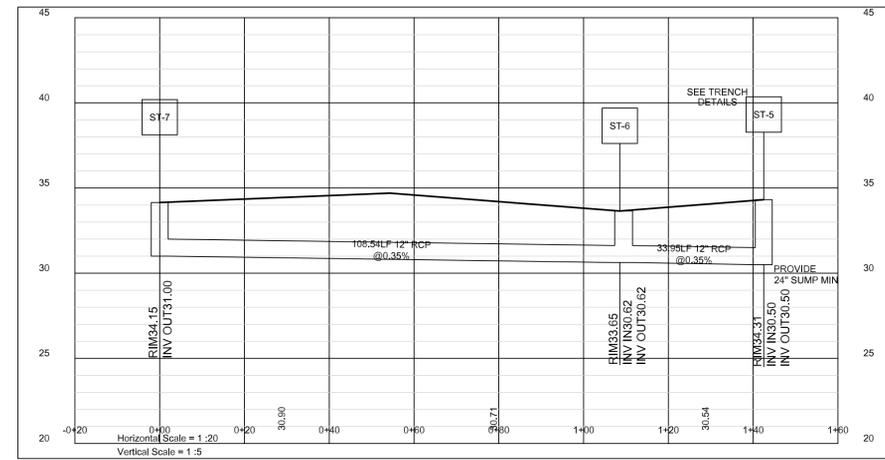
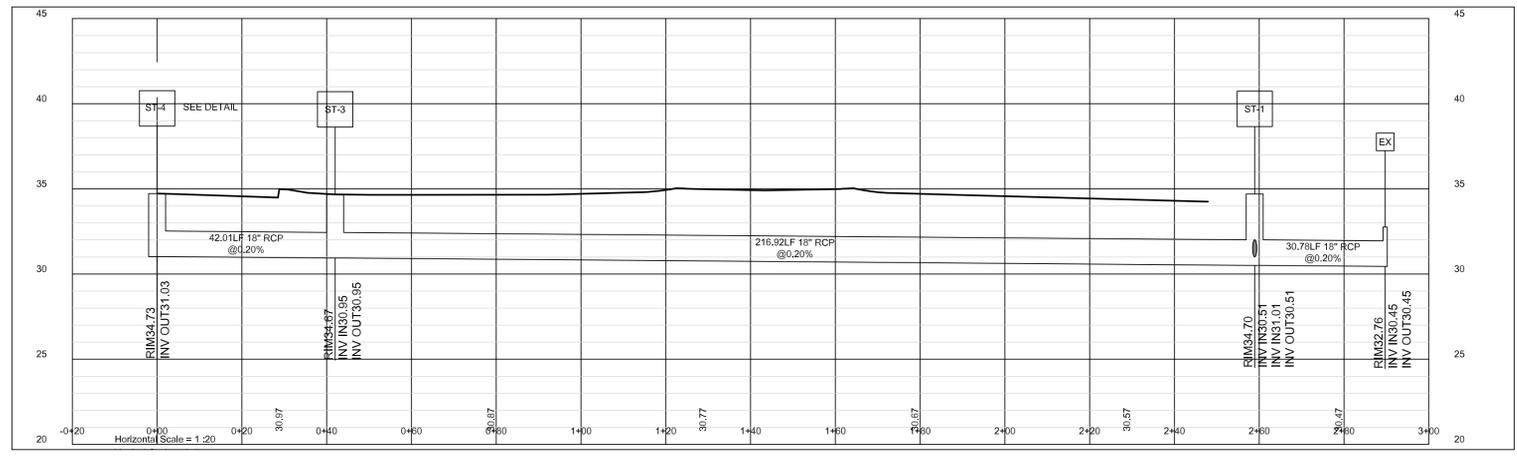
NO.	DATE	REVISIONS
4	5-16-2023	PARKING REVISION
3	4-21-2022	REVISIONS, TRC COMMENTS
2	4-05-2022	REVISIONS, TRC COMMENTS
1	2-09-2022	REVISIONS, TRC COMMENTS

GRADING PLAN
OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY
 CAPE FEAR TOWNSHIP, NEW HANOVER COUNTY, NORTH CAROLINA
 OWNER: OTH REALTY LLC
 1701 N. J.E.L. WADE DR.
 WILMINGTON N.C. 28401
 Date: 5-5-2022
 Scale: 1" = 30'
 Drawn: gw
 Checked: gw
 Project No: 4372

GRADING PLAN

PRELIMINARY PLAN
 Sheet No: 9
 of 11

HANOVER DESIGN SERVICES, P.A.
 LAND SURVEYORS, ENGINEERS & LAND PLANNERS
 1000 W. MARKET ST., SUITE 200
 WILMINGTON, N.C. 28403
 LICENSE # C-2003



REVISIONS	DATE
3	4-21-2022
2	4-05-2022
1	2-03-2022

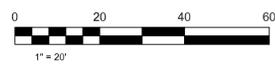
OWNER: **OTH REALTY, LLC**
 1701 N. J. EL. WADE DR.
 WILMINGTON, N.C. 28401

Date: 5-5-2022
 Scale: HORZ.: 1" = 20'
 Drawn: gw
 Checked: gw
 Project No: 4372

STORM PROFILES
OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY

Sheet No: **10**
 OR: **11**

PRELIMINARY PLAN



For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: _____ Permit # _____
 Signed: _____

Approved Construction Plan

Name: _____ Date: _____

Planning: _____

Traffic: _____

Fire: _____

REVISIONS	DATE
1	2-03-2022
2	4-05-2022
3	4-21-2022

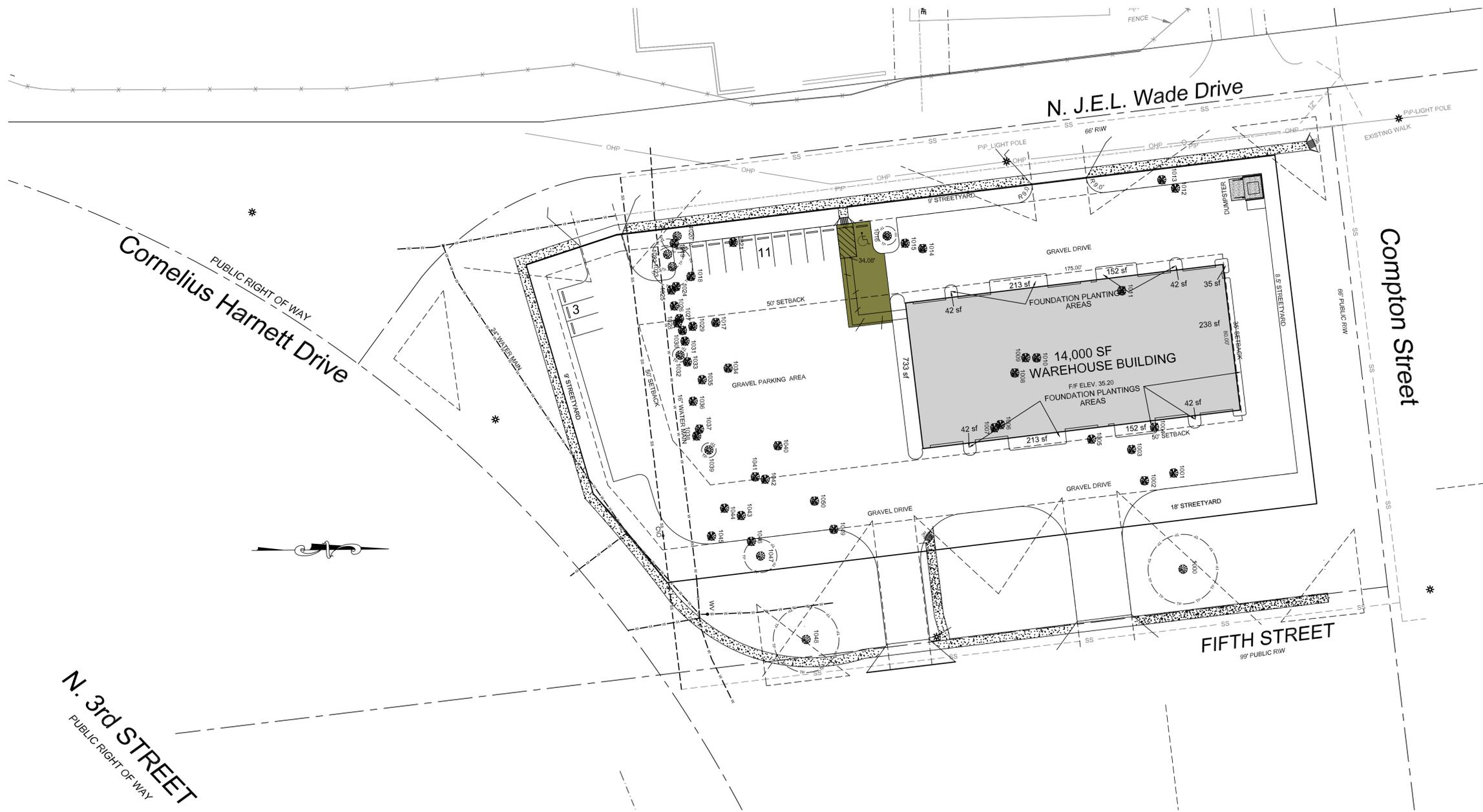
OWNER:
 07TH REALTY, LLC
 0701 N.J.E.L. WADE DR.
 WILMINGTON, N.C. 28401

DATE: 5-5-2022
SCALE: HORIZ.: 1" = 30'
DRAWN: gw
CHECKED: gw
PROJECT NO.: 4372

TREE SURVEY & REMOVAL PLAN

PRELIMINARY PLAN

Sheet No. **11**
 Of **11**



TREE TABLE			
1000,38" OAK	1036,15" OAK	1082,22.5" OAK	1121,17" GUM
1001,37" OAK	1037,14.5" OAK	1083,20.5" OAK	1122,16" HARDWOOD
1002,5" MAG.	1038,14" OAK	1084,9" OAK	1123,16" HARDWOOD
1003,36" OAK	1039,20" OAK	1085,13" OAK	1124,50" HARDWOOD
1004,20.5" OAK	1040,19" OAK	1086,TRIPPLE 11" 11" 10" HARD W.	1125,9" HARDWOOD
1005,30" OAK	1041,25" OAK	1087,11" HARDWOOD	1126,TRIPPLE 8.5" HARDWOOD
1006,8" HARDWOOD	1042,20" OAK	1088,9" HARDWOOD	1127,10" HARDWOOD
1007,TWIN 9" 10" HARDWOOD	1043,21" OAK	1089,10" HARDWOOD	1128,12" HARDWOOD
1008,9.5" HARDWOOD	1044,24" OAK	1090,20" HARDWOOD	1129,15" HARDWOOD
1009,12" HARDWOOD	1045,32" OAK	1091,15" HARDWOOD	1130,15" HARDWOOD
1010,8" HARDWOOD	1046,20.5" OAK	1092,24" HARDWOOD	1131,9" HARDWOOD
1011,8.5" MAG	1047,18.5" OAK	1093,TWIN 12" 10" HARD W.	1132,9" HARDWOOD
1012,10" HARDWOOD	1048,38" OAK	1094,14" HARDWOOD	1133,13" HARDWOOD
1013,TWIN 9" 7" HARDWOOD	1049,18.5" HARDWOOD	1095,26" HARDWOOD	1134,TWIN 21" 16" HARDWOOD
1014,9" HARDWOOD	1050,14" HARDWOOD	1096,23" HARDWOOD	1135,24.5" HARDWOOD
1015,9" HARDWOOD	1051,24" OAK	1097,18" HARDWOOD	1136,22" HARDWOOD
1016,10" HARDWOOD	1052,18.5" OAK	1098,19" GUM	1137,19" HARDWOOD
1017,19" OAK	1053,10" OAK	1099,10.5" OAK	1138,15" OAK
1018,19" OAK	1054,17" OAK	1100,34.5" OAK	1140,30.5" HARDWOOD
1019,19" OAK	1055,11.5" OAK	1101,15.5" HARDWOOD	1141,9" HARDWOOD
1020,19" OAK	1056,8.5" OAK	1102,14" OAK	1142,11" HARDWOOD
1021,8.5" HARDWOOD	1057,14.5" OAK	1103,15" OAK	1143,TWIN 9.5" 8" GUM
1022,7.5" OAK	1058,18.5" OAK	1104,TWIN 22.5" 12.5" OAK	1144,9" HARDWOOD
1023,22" OAK	1059,19" OAK	1105,19" OAK	
1024,TWIN 14" 12" OAK	1061,27" OAK	1106,12.5" OAK	
1025,22" OAK	1062,16" OAK	1107,8.5" OAK	
1026,13.5" OAK	1063,10" HARDWOOD	1110,13.5" HARDWOOD	
1027,8.5" OAK	1064,20" OAK	1111,34" HARDWOOD	
1028,17.5" OAK	1066,19" HARDWOOD	1112,38" HARDWOOD	
1029,11.5" OAK	1075,TWIN 14" 9" OAK	1113,TWIN 6.5" 9" HARD W.	
1030,7" MAG	1076,9" OAK	1114,TRIPPLE 7.5" 11" 9" HARD W.	
1031,23" OAK	1077,15" OAK	1115,9" HARDWOOD	
1032,20.5" OAK	1079,12" OAK	1116,12.5" HARDWOOD	
1033,TWIN 12" 19.5" OAK	1079,9" OAK	1117,3" HARDWOOD	
1034,9.5" OAK	1080,8" OAK	1118,24" HARDWOOD	
1035,24" OAK	1081,20.5" OAK	1119,10" HARDWOOD	

1016,10" HARDWOOD DENOTES RETAINANCE TREES
 TREE PROTECTION FENCE

WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: _____ Permit # _____
 Signed: _____

Approved Construction Plan

Name	Date
Planning _____	
Traffic _____	
Fire _____	

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



PROJECT INFORMATION

ENGINEERED PROJECT: **YACHT AREA-2**

DESIGNER: **WILMINGTON, NC**

DATE: **4-21-2022**

PROJECT NO: **2022-001**

SiteASSIST[™]
FOR STORMTECH[®]
INSTRUCTIONS,
DOWNLOAD THE
INSTALLATION APP

YACHT AREA-1 WILMINGTON, NC

SC-310 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-310.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2022 (POLYETHYLENE) OR ASTM F2416-16 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBERS ROWS SHALL PROVIDE CONTINUOUS UNSTRUCTURED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.10, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCE.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2737, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (1 MIN) HIGHT DESIGN TRUCK LOAD (IN MINIMUM COVER D) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) ASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 2.2.2 OF ASTM F2022 SHALL BE GREATER THAN OR EQUAL TO 400 LB-IN/IN, AND 5) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73 °F / 23 °C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
 - THE STRUCTURAL EVALUATION SHALL BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER.
 - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.5 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD. THE SAFETY FACTORS SHALL BE DETERMINED BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
 - THE TEST DESIGNED CRISP MODULUS AS SPECIFIED IN ASTM F2022 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM

- STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-750 CONSTRUCTION GUIDE".
- CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
 - STONES/ROCKS LOCATED OFF THE CHAMBER BED.
 - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOLE OR EXCAVATOR.
- THE FOUNDATION STONE SHALL BE LEVELLED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- MAINTAIN MINIMUM 6" (150 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE 3/4" (20-50 mm).
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- AOS RECOMMENDS THE USE OF "FLEXIFORM CATCH P" INSERTS DURING CONSTRUCTION FOR ALL INSERTS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

- STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-750 CONSTRUCTION GUIDE".
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
 - NO EQUIPMENT IS ALLOWED ON CHAMBERS.
 - NO RUBBER TREAD LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-750 CONSTRUCTION GUIDE".
 - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-750 CONSTRUCTION GUIDE".
- FULL 30" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-952-2694 WITH ANY QUESTIONS AT INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROJECT INFORMATION

ENGINEERED PROJECT: **YACHT AREA-2**

DESIGNER: **WILMINGTON, NC**

DATE: **4-21-2022**

PROJECT NO: **2022-001**

SiteASSIST[™]
FOR STORMTECH[®]
INSTRUCTIONS,
DOWNLOAD THE
INSTALLATION APP

ACCEPTABLE FILL MATERIALS: STORMTECH SC-310 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEURBAE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBGRADE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE (0' LAYER) TO 12" (300 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBGRADE MAY BE A PART OF THE 'C' LAYER.	AASHTO M44 ¹ A-1, A2-4, A-3 OR AASHTO M43 ² 3, 397, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 86, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 90% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 13,000 lbs (59 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (90 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE (A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE AASHTO M43 ² 3, 397, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT BOTTOM OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE AASHTO M43 ² 3, 397, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE. ^{2,3}

PLEASE NOTE:

- THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
- STORMTECH COMPACTION REQUIREMENTS ARE MET FOR IN-LAYER MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) MAX LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
- WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAVING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGN, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
- ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBGRADE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.

PAVEMENT LAYER (DESIGNED BY SITE DESIGN ENGINEER)

6" (150 mm) MIN 12" (300 mm) MAX

12" (300 mm) TYP

DEPTH OF STONE TO BE DETERMINED BY SITE DESIGN ENGINEER 6" (150 mm) MIN

34.0" (865 mm)

15" (381 mm) MIN

12" (300 mm) MIN

END CAP

SUBGRADE SOILS (SEE NOTE 4)

EXCAVATION WALL (CAN BE SLOPED OR VERTICAL)

PERIMETER STONE (SEE NOTE 5)

AOS GEOTEXTILES ROIT NON-WOVEN GEOTEXTILE ALL AROUND CLEAN, CRUSHED, ANGULAR STONE IN A & B LAYERS

NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2022 (POLYETHYLENE) OR ASTM F2416-16 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- SC-310 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2737, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
 - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
 - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
 - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 2.2.2 OF ASTM F2022 SHALL BE GREATER THAN OR EQUAL TO 400 LB-IN/IN AND 5) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73 °F / 23 °C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

PROJECT INFORMATION

ENGINEERED PROJECT: **YACHT AREA-2**

DESIGNER: **WILMINGTON, NC**

DATE: **4-21-2022**

PROJECT NO: **2022-001**

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YACHT AREA-2 WILMINGTON, NC

SC-310 ISOLATOR ROW PLUS DETAIL

SC-310 ISOLATOR ROW PLUS DETAIL
NTS

COVER ENTIRE ISOLATOR ROW PLUS WITH AOS GEOTEXTILES ROIT NON-WOVEN GEOTEXTILE 5" (125 mm) WIDE

OPTIONAL INSPECTION PORT

SC-310 END CAP

ONE LAYER OF AOS RUBLS WOVEN GEOTEXTILE BETWEEN FOUNDATION STONE AND CHAMBERS 4" (102 mm) MIN WIDE CONTINUOUS FABRIC WITHOUT SEAMS

12" (300 mm) HOLE ACCESS PIPE REQUIRED USE FACTORY PRE-FABRICATED END CAP PART #: SC10EPI20R

SUMP DEPTH TBD BY SITE DESIGN ENGINEER (24" (600 mm) MIN RECOMMENDED)

CATCH BASIN OR MANHOLE

SC-310 CHAMBER

STORMTECH HIGHLY RECOMMENDS FLEXIFORM INSERTS IN ANY STRUCTURAL STRUCTURES WITH OPEN GRATES

STORMTECH RECOMMENDS FLEXIFORM INSERTS IN ANY STRUCTURAL STRUCTURES WITH OPEN GRATES

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT

- INSPECTION POINTS (IF PRESENT):
 - REMOVE/OPEN LID ON NYLON/PLASTIC INLINE DRAIN
 - REMOVE AND CLEAN FLEXIFORM FILTER IF INSTALLED
 - USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
 - LOWERS A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
 - IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- ALL ISOLATOR TUBES ROWS:
 - REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
 - USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
 - MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
 - FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
 - IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS

- A PNEUMATIC CLEANING NOZZLE WITH REAR FACING SPREAD OF 40" (1.1 m) OR MORE IS PREFERRED
- APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

- INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION, ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.
- CONDUCT JETTING AND VACUUMING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

PROJECT INFORMATION

ENGINEERED PROJECT: **YACHT AREA-2**

DESIGNER: **WILMINGTON, NC**

DATE: **4-21-2022**

PROJECT NO: **2022-001**

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PROJECT INFORMATION

ENGINEERED PROJECT: **YACHT AREA-2**

DESIGNER: **WILMINGTON, NC**

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YACHT AREA-2 WILMINGTON, NC

SC-310 TECHNICAL SPECIFICATION

UNDERDRAIN DETAIL
NTS

SC-310 TECHNICAL SPECIFICATION
NTS

90.2" (2304 mm) ACTUAL LENGTH

85.4" (2169 mm) INSTALLED LENGTH

BUILD ROW IN THIS DIRECTION

OVERLAP NEXT CHAMBER HERE (OVER SMALL CORRUGATION)

START END

15.0" (381 mm)

34.0" (865 mm)

16.0" (406 mm)

9.0" (231 mm)

NUMBER AND SIZE OF UNDERDRAINS PER SITE DESIGN ENGINEER 6" (150 mm) TYP FOR SC-310 & SC-1500 SYSTEMS 6" (150 mm) TYP FOR SC-740, DC-750, MC-3500 & MC-6500 SYSTEMS

STORMTECH CHAMBERS

STORMTECH END CAP

FOUNDATION STONE BENEATH CHAMBERS

AOS GEOTEXTILES ROIT NON-WOVEN GEOTEXTILE

SECTION A-A

DUAL WALL PERFORATED HOLE UNDERDRAIN

STORMTECH END CAP

FOUNDATION STONE BENEATH CHAMBERS

AOS GEOTEXTILES ROIT NON-WOVEN GEOTEXTILE

SECTION B-B

NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	CHAMBER STORAGE	MINIMUM INSTALLED STORAGE*	WEIGHT
34.0" X 16.0" X 90.2" (865 mm X 406 mm X 2169 mm)	14.7 CUBIC FEET (0.42 m ³)	31.2 CUBIC FEET (0.88 m ³)	36.0 kg (79.3 lb)

*ASSUMES 6" (152 mm) ABOVE, BELOW, AND BETWEEN CHAMBERS

PART #	STUB	A	B	C
SC31EPI08 / SC31EPI08PC	6" (150 mm)	9.6" (244 mm)	5.0" (127 mm)	0.5" (13 mm)
SC31EPI10 / SC31EPI10PC	6" (150 mm)	11.0" (280 mm)	3.5" (89 mm)	0.5" (13 mm)
SC31EPI12 / SC31EPI12PC	10" (250 mm)	12.0" (305 mm)	4.4" (112 mm)	0.5" (13 mm)
SC31EPI14 / SC31EPI14PC	12" (300 mm)	13.0" (330 mm)	5.0" (127 mm)	0.5" (13 mm)
SC31EPI16 / SC31EPI16PC	12" (300 mm)	13.0" (330 mm)	5.0" (127 mm)	0.5" (13 mm)

ALL STUBS EXCEPT FOR THE SC31EPI10 ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-952-2694.

*FOR THE SC31EPI10 THE 12" (300 mm) STUB LIES BELOW THE BOTTOM OF THE END CAP APPROXIMATELY 0.25" (6 mm). BACKFILL MATERIAL SHOULD BE REMOVED FROM BELOW THE N-12 STUB SO THAT THE FITTING SITS LEVEL.

NOTE: ALL DIMENSIONS ARE NOMINAL.

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____

Signed: _____

Approved Construction Plan

Name _____ Date _____

Planning _____

Traffic _____

Fire _____



PRELIMINARY PLAN

REVISIONS

NO.	DATE	REVISIONS / TRC COMMENTS
3	4-21-2022	
2	4-05-2022	
1	2-03-2022	

OWNER:
OTH REALTY, LLC
1701 N. JEL WADE DR.
WILMINGTON, N.C. 28401

Date: **5-5-2022**
Scale: **NTS**
Checked: **NTS**
Drawn: **gw**
Project No: **4372**

ADS INFILTRATION TRENCH DETAILS

Sheet No: **TD-1**
TD-2

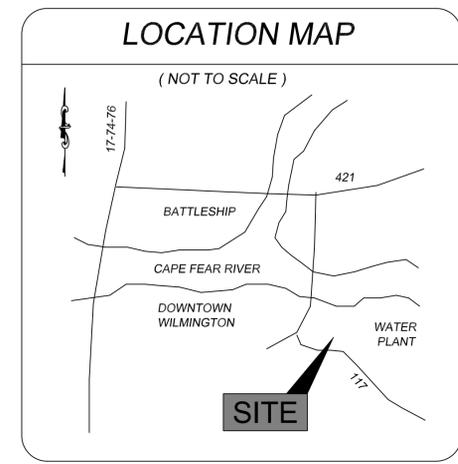
HANOVER DESIGN SERVICES, P.A.
LAND SURVEYING, ENGINEERING & LAND PLANNING
1501 GOLF COURSE PARKWAY
WILMINGTON, N.C. 28403
LICENSE # 12-0597

Off The Hook Yacht Sales

N. J.E.L WADE DRIVE

Erosion and Sediment Control

DISTURBED AREA = 2.61 ACRES



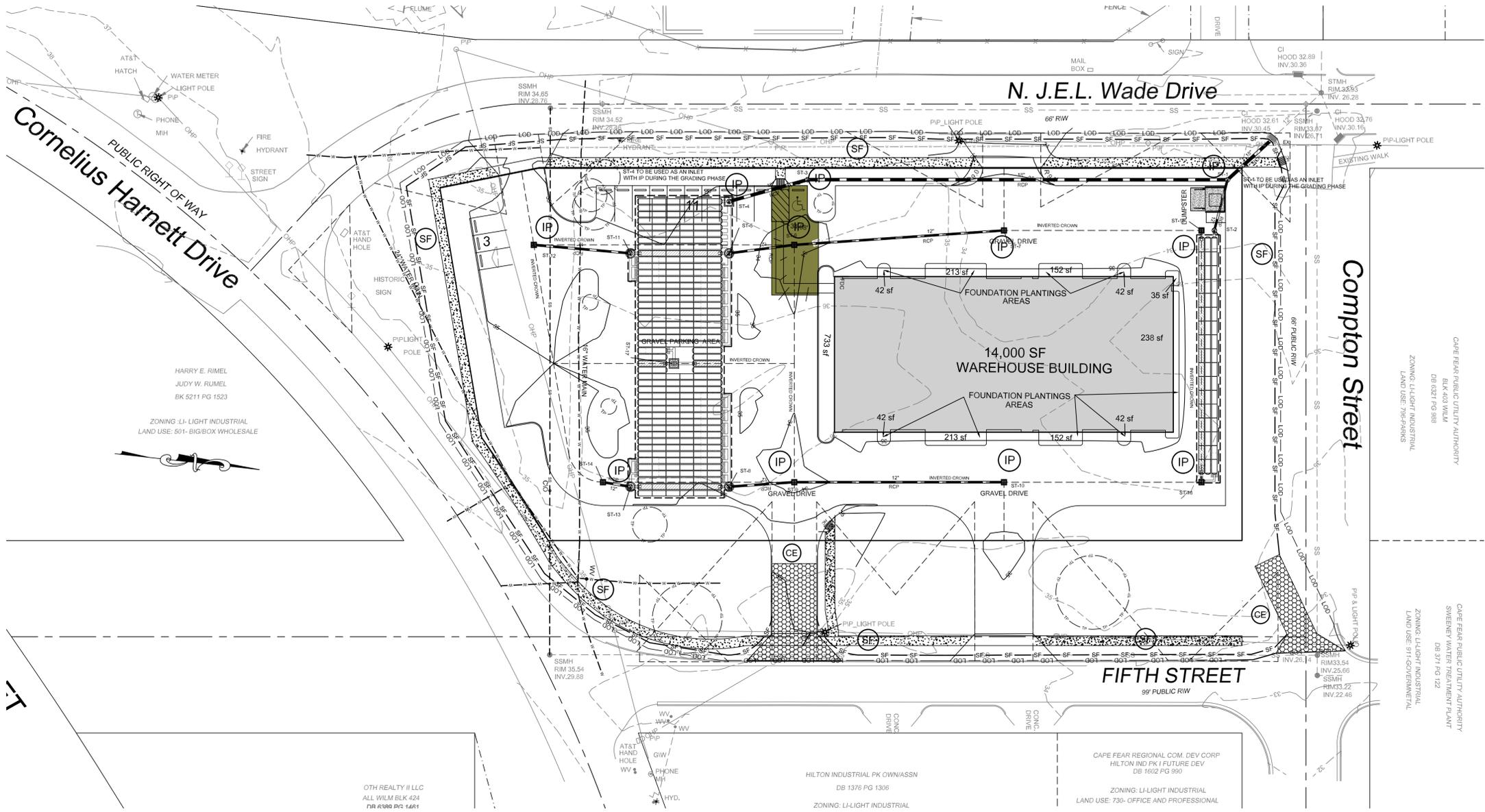
0 30 60 90
1" = 30'

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
WILMINGTON, N.C. 28403
LICENSE # 01-000002

LEGEND

- WV = WATER VALVE
- WM = WATER METER
- C/O = SANITARY SEWER CLEAN OUT
- INV. = INVERT
- B/O = BLOW OFF ASSEMBLY
- BFP = BACK FLOW PREVENTOR
- GW = GUY WIRE
- SWMH = STORM MANHOLE
- GT. = GREASE TRAP
- FH = FIRE HYDRANT ASSEMBLY
- I.S. = IRON SET
- = SANITARY SEWER MH
- = CURB INLET
- = TREE
- ⊙ = CURB RAMP
- ⊞ = WATER SERVICE
- ⊕ = SEWER CLEANOUT
- ⊞ = WATER VALVE
- ⊞ = SIGN LOCATION
- HC = HANDICAP CROSSING

- PROPERTY LINE
- BUILDING SETBACK
- CENTERLINE
- EASEMENT
- COMPUTED PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- PROPOSED STORM DRAIN
- PROPOSED 6" SANITARY SEWER SERVICE
- PROPOSED FENCE
- IP = INLET PROTECTION
- CE = CONSTRUCTION ENTRANCE (TYPICAL)
- LOD = LIMITS OF DISTURBANCE
- SF = SILT FENCE (TYPICAL)
- CW = CONCRETE WASHOUT
- TD = TEMPORARY DIVERSION



- ### CONSTRUCTION SCHEDULE -
- Obtain approval of Plan and any necessary permits, and hold a pre-construction conference prior to commencing any work.
 - Flag work limits and stake-out measures for preliminary grading. Install silt fencing as shown.
 - Install Gravel Construction Entrance.
 - The storm drain system shall be extended early in the process as possible so runoff can be directed to the inlets with inlet protection. During clearing process and prior to any major grading and grubbing, the storm drain from existing manhole 1 shall be installed to ST-3 and set at 1' below design grade, and inlet protection added. Once the remaining system is installed the inlet shall be brought to the design grade.
 - Maintain Sediment fence, BIP, and Inlet protection as this will be the main source of sediment control.
 - Immediately stabilize all non-construction areas.
 - Construct any other sediment control Practices shown, prior to rough grading site, stockpiling topsoil as necessary.
 - Establish final grades.
 - All erosion and sediment control Practices are to be inspected weekly and after any rainfall, and repaired as necessary.
 - Upon completion of grading, all areas are to be permanently vegetative stabilized. After site stabilization, temporary measures are to be removed. The temporary sediment basin shall be cleaned out to these design elevations.

- ### MAINTENANCE PLAN -
- All measures to be inspected weekly and after any rainfall event and needed repairs made immediately.
 - Sediment to be removed from behind the Silt Fence when it becomes 0.5' deep. Fencing to be repaired as needed to maintain a barrier.
 - Inspect inlets at least weekly and after each significant (1/2 inch or greater) rainfall event. Repair any defects. Replace stone as needed per specification.
 - All seeded areas shall be fertilized, mulched, and reseeded as necessary, according to specifications provided, to maintain a suitable vegetative cover.
 - Construction entrances are to be maintained in a condition to prevent mud or sediment from leaving the construction site. Periodic topdressing with 2" stone may be required. Remove all objectionable material spilled, washed, or tracked onto public roadways immediately.

INDEX TO DRAWINGS	
SHEET No.	DESCRIPTION
EC-1 OF EC-4	EROSION CONTROL PLANS
EC-2 OF EC-4	EROSION CONTROL DETAILS
EC-3 OF EC-4	EROSION CONTROL DETAILS
EC-4 OF EC-4	EROSION CONTROL DETAILS
B-1 OF B-1	BASIN DETAILS

STABILIZATION TIME FRAMES:	
SITE AREA DESCRIPTION	STABILIZATION
Perimeter dikes, swales, ditches and slopes	7 DAYS
High Quality Water (HQW) Zones	7 DAYS
Slopes steeper than 3:1	7 DAYS
Slopes 3:1 or flatter	14 DAYS
All other areas with slopes flatter than 4:1	14 DAYS

GENERAL NOTES:

- This map is not for conveyance, recordation, or sales.

NOTE WELL:

1. EQUIPMENT CLEARANCE MINIMUM 16' FROM TRANSMISSION LINES TO BE MAINTAINED AT ALL TIMES. (REFERENCE: OSHA 1910.269)

2. ANY TREE, OR SHRUB CAN BE PLANTED WITHIN THE RIGHT-OF-WAY AS LONG AS THE MATURE HEIGHT IS 12 FEET OR LESS. WHEN PLANTING TREES AND SHRUBS, PLEASE REMEMBER TO LEAVE SUFFICIENT SPACING TO ALLOW UTILITY MAINTENANCE VEHICLES ACCESS WITHIN THE RIGHT-OF-WAY.

NOTE WELL:

1) CLASS IV RCP SHALL BE USED WHEN COVER IS LESS THAN 2.0' FOR STORM SEWER

NOTE WELL:

1) CONTRACTOR TO ENSURE THAT STREET PAVEMENT & CURBING IS PLACED SO AS TO DRAIN POSITIVELY TO CURB INLETS AND DRAINAGE STRUCTURES.

NOTE WELL:

MULTIPLE UTILITIES SHOWN GRAPHICALLY IN PROFILE. DEVIATIONS NOTED AS SHOWN. MAINTAIN 36" COVER AND USE DIP AT CROSSINGS WHEN REQUIRED. SEE COVER SHEET NOTES.

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

City of WILMINGTON
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Date: _____ Permit # _____
Signed: _____

Approved Construction Plan

Name	Date
Planning	_____
Traffic	_____
Fire	_____

DATE	REVISIONS
7-7-2022	EROSION CONTROL COMMENTS
4-21-2022	REVISIONS / TRC COMMENTS
4-05-2022	REVISIONS / TRC COMMENTS
2-03-2022	REVISIONS / TRC COMMENTS

OWNER: OTH REALTY LLC
1701 N. J.E.L. WADE DR.
WILMINGTON N.C. 28401

DATE: 5-5-2022
SCALE: HORIZ. 1" = 30'
DRAWN: gw/ahg
CHECKED: ahg
PROJECT NO.: 4372

OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY
CAPE FEAR TOWNSHIP, NEW HANOVER COUNTY, NORTH CAROLINA

CAPE FEAR PUBLIC UTILITY AUTHORITY
BLK 403 WILM
DB 6271 PG 988

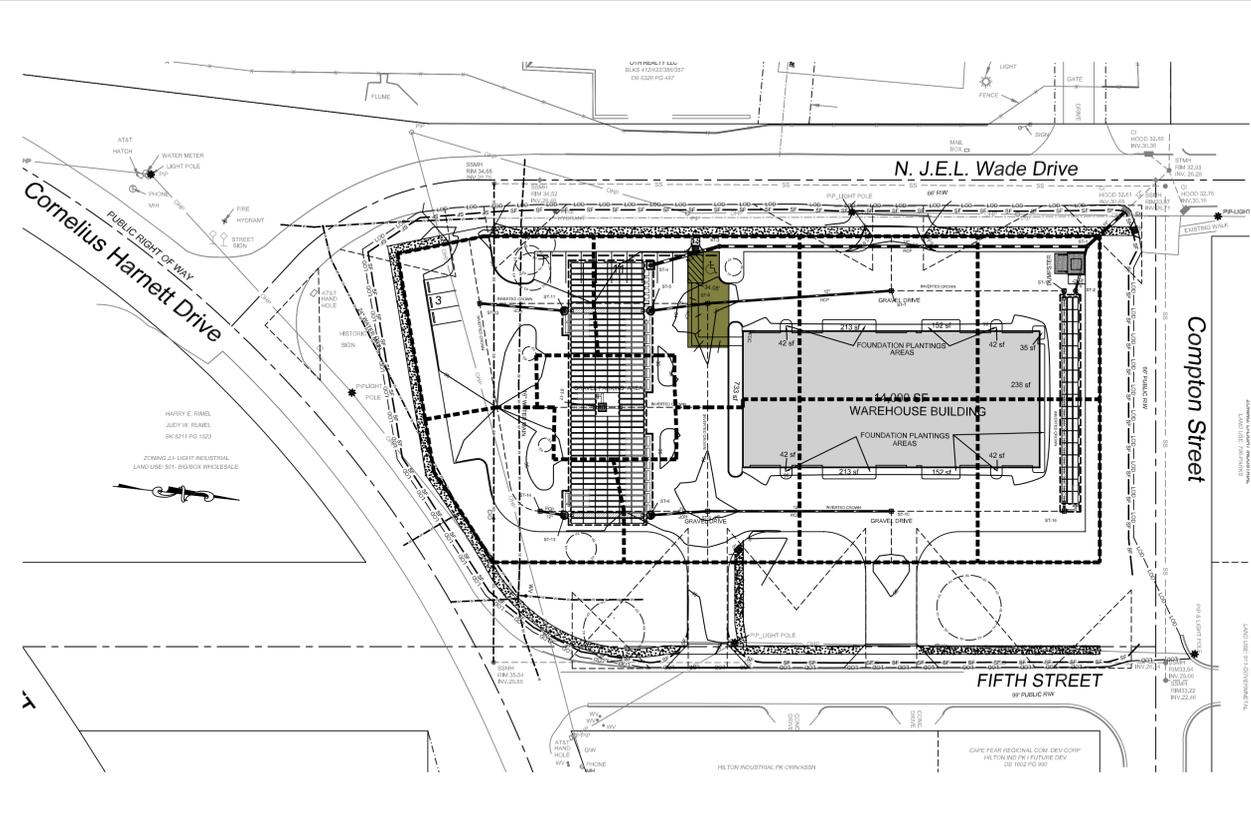
CAPE FEAR PUBLIC UTILITY AUTHORITY
SWEENEY WATER TREATMENT PLANT
DB 371 PG 122

ZONING: LI-LIGHT INDUSTRIAL
LAND USE: 798-PARKS

ZONING: LI-LIGHT INDUSTRIAL
LAND USE: 730- OFFICE AND PROFESSIONAL

PRELIMINARY PLAN

Sheet No:
EC-1
EC-4



STORM NETWORK SUMMARY						
DN STRUCTURE	UP STRUCTURE	DOWN INVERT (FT)	UP INVERT (FT)	LENGTH (FT)	SLOPE (%)	SIZE (IN)
EX	ST-1	30.51	30.78	0.20	18.0	
ST-1	ST-2	31.01	31.07	26.91	0.20	12.0
ST-1	ST-3	30.51	30.95	216.92	0.20	18.0
ST-3	ST-4	30.95	31.03	42.01	0.20	18.0
ST-5	ST-6	30.50	30.62	33.95	0.35	12.0
ST-6	ST-7	30.62	31.00	108.54	0.35	12.0
ST-8	ST-9	30.50	30.62	33.75	0.35	12.0
ST-9	ST-10	30.62	31.00	108.28	0.35	12.0
ST-11	ST-12	31.00	31.10	50.10	0.20	12.0
ST-13	ST-14	31.00	31.10	14.43	0.69	12.0

Temporary Driveway Construction Entrance/Exit
Specification # 6.08 - Construction Specifications

- Clear the entrance and exit area of all vegetation, roots and other objectionable material and properly grade it.
- Place the gravel to the specific grade and dimensions shown on the plans and smooth it.
- Provide drainage to carry water to a sediment trap or other suitable outlet.
- Use geotextile fabric because they improve stability of the foundation in locations subject to seepage or high water table.

Maintenance
Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2-inch stone. After each rainfall, inspect any structure used to trap sediment and clean it out as necessary. Immediate removal of objectionable materials spilled, washed, or tracked onto public roadways.

Hardware Cloth & Gravel Inlet Protection (Temporary)
Specification # 6.51 - Construction Specifications

As fabric, use a 18-gauge hardware cloth with 1/4 inch mesh openings, with a total height of 2 feet minimum. The sediment control device, with a height of 18 inches, should have an outside slope of 2:1.

For stiles, use steel 1 posts of 1.25 lb./linear foot with a minimum length of 5 ft., driven 2 ft. into the ground, maximum spacing of 4 feet.

Specifications

- Uniformly grade a shallow depression approaching the inlet.
- Drive 5-foot steel posts 2 feet into the ground surrounding the inlet. Space posts evenly around the perimeter of the inlet, a maximum of 4 feet apart.
- Surround the posts with wire mesh hardware cloth. Secure the wire mesh to the steel posts at the top, middle, and bottom. Place a 2-foot anchoring top of the mesh under the gravel is recommended.
- Place clean gravel (NOOT #5 or #7) stone on a 2:1 slope with a height of 18 inches around the wire, and smooth to an even grade.
- Once the contributing drainage area has been stabilized, remove the accumulated sediment, and establish final grade.
- Compact the area properly and stabilize with groundcover.

Maintenance
Inspect the barrier after each significant rain and make repairs as needed. Remove sediment from the area as necessary to provide adequate storage volume for the next rain. Take care not to damage or undercut the hardware cloth during sediment removal.

Sediment Fence (Silt Fence)
Specification # 6.62 - Construction Specifications

MATERIALS

- Use a synthetic filter fabric or a pervious sheet of polypropylene, nylon, polyester, or polyethylene geom, which is certified by the manufacturer or supplier as conforming to the requirements shown in Table 6.62b. Synthetic filter fabric should contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected useful construction life at a temperature range of 0 to 120 °F.
- Ensure that posts for sediment fences are either 4-inch diameter pipe, 2-inch diameter steel, or 1.25 lb./linear foot steel with a minimum length of 1 ft. Make sure that steel posts have projections to facilitate fastening the fabric.
- For reinforcement of standard strength filter fabric, use wire fence with a minimum 14 gauge and a maximum mesh spacing of 6 inches.

Table 6.62b
Specifications for Sediment Fence Fabric
Physical Property Requirements

Filtering Efficiency	≥ 85% (mm)
Tensile Strength at Standard Strength	≥ 30 lb./in. (mm)
Extra Strength	≥ 50 lb./in. (mm)
Slurry Flow Rate	≥ 0.3 gal./sq. ft./min. (mm)

CONSTRUCTION

- Construct the sediment barrier of standard strength or extra strength synthetic filter fabric.
- Ensure that the height of the sediment fence does not exceed 18 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)
- Construct the filter fabric from a continuous roll out to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with overlap to the next post.
- Support standard strength filter fabric by wire mesh fastened to the up slope side of the posts using heavy duty wire staples at least 1 inch long, or 1/4 inch wire. Extend the wire mesh support to the bottom of the trench.
- When a wire mesh support fence is used, space posts a minimum of 8 ft. apart. Support posts should be driven securely into the ground to a minimum of 18 inches.
- Extra strength filter fabric with 8 ft. post spacing does not require wire mesh support fence. Staples or wire the filter fabric directly to posts.
- Excavate a trench approximately 4 inches wide and 8 inches deep along the proposed line of posts and collapse from the corner (Figure 6.62c).
- Backfill the trench with compacted soil or gravel placed over the filter fabric.
- Do not attach filter fabric to existing trees.

Maintenance
Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.

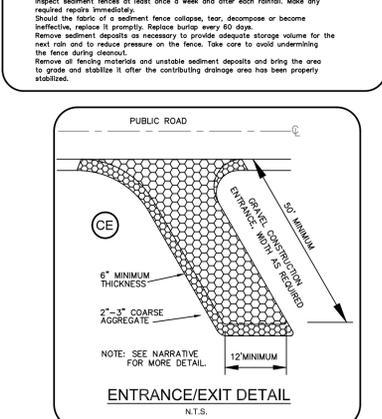
Table 6.62c
Specifications for Sediment Fence Fabric
Physical Property Requirements

Filtering Efficiency	≥ 85% (mm)
Tensile Strength at Standard Strength	≥ 30 lb./in. (mm)
Extra Strength	≥ 50 lb./in. (mm)
Slurry Flow Rate	≥ 0.3 gal./sq. ft./min. (mm)

CONSTRUCTION

- Construct the sediment barrier of standard strength or extra strength synthetic filter fabric.
- Ensure that the height of the sediment fence does not exceed 18 inches above the ground surface. (Higher fences may impound volumes of water sufficient to cause failure of the structure.)
- Construct the filter fabric from a continuous roll out to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with overlap to the next post.
- Support standard strength filter fabric by wire mesh fastened to the up slope side of the posts using heavy duty wire staples at least 1 inch long, or 1/4 inch wire. Extend the wire mesh support to the bottom of the trench.
- When a wire mesh support fence is used, space posts a minimum of 8 ft. apart. Support posts should be driven securely into the ground to a minimum of 18 inches.
- Extra strength filter fabric with 8 ft. post spacing does not require wire mesh support fence. Staples or wire the filter fabric directly to posts.
- Excavate a trench approximately 4 inches wide and 8 inches deep along the proposed line of posts and collapse from the corner (Figure 6.62c).
- Backfill the trench with compacted soil or gravel placed over the filter fabric.
- Do not attach filter fabric to existing trees.

Maintenance
Inspect sediment fences at least once a week and after each rainfall. Make any required repairs immediately.



Permanent Seeding
Specification # 6.11 - Specifications

Seeded Requirements
Establishment of vegetation should not be attempted on sites that are unsuitable due to inappropriate soil texture (Table 6.11a), poor drainage, concentrated overhead flow, or steepness of slope until measures have been taken to correct these problems.

To maintain a good stand of vegetation, the soil must meet certain minimum requirements as a growth medium. The existing soil should have these criteria:

- Enough fine-grained (silt and clay) material to maintain adequate moisture and nutrient supply (available water capacity of at least .05 inches water to 1 inch of soil).
- Sufficient pore space to permit root penetration.
- Sufficient depth of soil to provide an adequate root zone. The depth to rock or impermeable layers such as horizons should be 12 inches or more, except on slopes steeper than 2:1 where the addition of soil is not feasible.
- A favorable pH range for plant growth, usually 6.0-6.5.
- Freedom from large roots, branches, stones, large clods of earth, or trash of any kind. Clods of earth are not suitable, as the existing soil is 3:1 they are to be hydroseeded.

Soil Conditions
In order to improve the structure or drainage characteristics of a soil, the following material may be added. These amendments should only be necessary where soils have limitations that make them poor for plant growth or for fine turf establishment (see Chapter 3, Hydrology).

Table 6.10a - Temporary Seeding Recommendation for Late Winter and Early Spring

Seeding Rate (lb./acre)	120
Species	Perennial Ryegrass, Annual Ryegrass, and Coastal Plain
Soil amendments	Follow recommendations of soil tests or apply 2,000 lb./acre ground agricultural limestone and 750 lb./acre 10-10-10 fertilizer.
Mulch	Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool.
Maintenance	Refer to 6.11 for details. Reseed, refertilize and mulch immediately following erosion or other damage.

Table 6.10b - Temporary Seeding Recommendations for Summer

Seeding Rate (lb./acre)	40
Species	Common Bermudagrass, St. Augustine, and Bahia
Soil amendments	Follow recommendations of soil tests or apply 2,000 lb./acre ground agricultural limestone and 750 lb./acre 10-10-10 fertilizer.
Mulch	Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool.
Maintenance	Refer to 6.11 for details. Reseed, refertilize and mulch immediately following erosion or other damage.

Table 6.10c - Temporary Seeding Recommendation for Fall

Seeding Rate (lb./acre)	120
Species	Perennial Ryegrass, Annual Ryegrass, and Coastal Plain
Soil amendments	Follow recommendations of soil tests or apply 2,000 lb./acre ground agricultural limestone and 750 lb./acre 10-10-10 fertilizer.
Mulch	Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool.
Maintenance	Refer to 6.11 for details. Reseed, refertilize and mulch immediately following erosion or other damage.

Table 6.11a - Seeding No. 40P for: Well-Drained Sandy Soils to Dry Sands; Coastal Plain; Low to Medium-Care Lawns

Seeding Rate (lb./acre)	40
Species	Common Bermudagrass, St. Augustine, and Bahia
Soil amendments	Follow recommendations of soil tests or apply 2,000 lb./acre ground agricultural limestone and 750 lb./acre 10-10-10 fertilizer.
Mulch	Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool.
Maintenance	Refer to 6.11 for details. Reseed, refertilize and mulch immediately following erosion or other damage.

Table 6.11b - Seeding No. 70P for: Grass-lined Channels; Coastal Plain

Seeding Rate (lb./acre)	40
Species	Common Bermudagrass, St. Augustine, and Bahia
Soil amendments	Follow recommendations of soil tests or apply 2,000 lb./acre ground agricultural limestone and 750 lb./acre 10-10-10 fertilizer.
Mulch	Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool.
Maintenance	Refer to 6.11 for details. Reseed, refertilize and mulch immediately following erosion or other damage.

Table 6.11c - Seeding No. 40P for: Well-Drained Sandy Soils to Dry Sands; Low to Medium-Care Lawns

Seeding Rate (lb./acre)	40
Species	Common Bermudagrass, St. Augustine, and Bahia
Soil amendments	Follow recommendations of soil tests or apply 2,000 lb./acre ground agricultural limestone and 750 lb./acre 10-10-10 fertilizer.
Mulch	Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool.
Maintenance	Refer to 6.11 for details. Reseed, refertilize and mulch immediately following erosion or other damage.

Table 6.11d - Seeding No. 70P for: Grass-lined Channels; Coastal Plain

Seeding Rate (lb./acre)	40
Species	Common Bermudagrass, St. Augustine, and Bahia
Soil amendments	Follow recommendations of soil tests or apply 2,000 lb./acre ground agricultural limestone and 750 lb./acre 10-10-10 fertilizer.
Mulch	Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool.
Maintenance	Refer to 6.11 for details. Reseed, refertilize and mulch immediately following erosion or other damage.

Table 6.11e - Seeding No. 40P for: Well-Drained Sandy Soils to Dry Sands; Low to Medium-Care Lawns

Seeding Rate (lb./acre)	40
Species	Common Bermudagrass, St. Augustine, and Bahia
Soil amendments	Follow recommendations of soil tests or apply 2,000 lb./acre ground agricultural limestone and 750 lb./acre 10-10-10 fertilizer.
Mulch	Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool.
Maintenance	Refer to 6.11 for details. Reseed, refertilize and mulch immediately following erosion or other damage.

Table 6.11f - Seeding No. 70P for: Grass-lined Channels; Coastal Plain

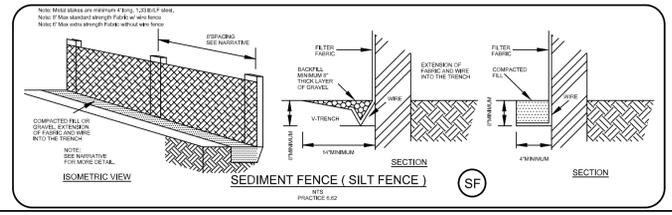
Seeding Rate (lb./acre)	40
Species	Common Bermudagrass, St. Augustine, and Bahia
Soil amendments	Follow recommendations of soil tests or apply 2,000 lb./acre ground agricultural limestone and 750 lb./acre 10-10-10 fertilizer.
Mulch	Apply 4,000 lb./acre straw. Anchor straw by tacking with asphalt, netting or a mulch anchoring tool.
Maintenance	Refer to 6.11 for details. Reseed, refertilize and mulch immediately following erosion or other damage.

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

WILMINGTON
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit #: _____
Signed: _____

Approved Construction Plan

Name	Date
Planning	_____
Traffic	_____
Fire	_____



REVISIONS \ TRC COMMENTS

REV. NO.	REVISIONS	DATE
3	REVISIONS \ TRC COMMENTS	4-21-2022
2	REVISIONS \ TRC COMMENTS	4-05-2022
1	REVISIONS \ TRC COMMENTS	2-03-2022

PRELIMINARY PLAN

Stormwater and Erosion & Sediment Control Details
OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY
CAPE FEAR TOWNSHIP, NEW HANOVER COUNTY, NORTH CAROLINA

OWNER: OTH REALTY LLC
1701 N.J.E.L. WADE DR.
WILMINGTON, N.C. 28401

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
1123 FLORAL PARKWAY
WILMINGTON, N.C. 28403
PHONE: (910) 343-8002
LICENSE # C-5597

Date: 5-5-2022
Scale: 1"=50'
Drawn: AHG
Checked: AHG
Project No: 4372
Sheet No: EC-2, EC-4

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Rolled erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

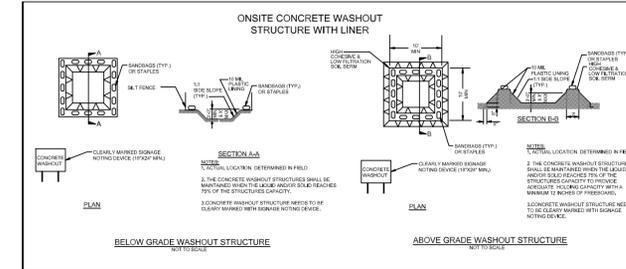
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

PRELIMINARY PLAN

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____

Approved Construction Plan
Name _____ Date _____
Planning _____
Traffic _____
Fire _____

REV. NO.	REVISIONS	DATE
3	REVISIONS \ TRC COMMENTS	4-21-2022
2	REVISIONS \ TRC COMMENTS	4-05-2022
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Stormwater and Erosion & Sediment Control Details
OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY
CAPE FEAR TOWNSHIP, NEW HANOVER COUNTY, NORTH CAROLINA

OWNER:
OTH REALTY LLC
1701 N.J.E.L. WADE DR.
WILMINGTON N.C. 28401

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Date: 5-5-2022
Scale: N/A
Drawn: AHG
Checked: AHG
Project No: 4372
Sheet No: EC-3
EC-4

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event \geq 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event \geq 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event \geq 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event \geq 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

**PART III, SECTION G, ITEM (4)
DRAW-DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT**

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- (a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
- (b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
- (c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
- (d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
- (e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
- (f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- (a) This General Permit as well as the Certificate of Coverage, after it is received.
- (b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

- (a) Visible sediment deposition in a stream or wetland.

- (b) Oil spills if:

- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

- (c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

- (d) Anticipated bypasses and unanticipated bypasses.

- (e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6)]. • Division staff may waive the requirement for a written report on a case-by-case basis.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

CITY OF WILMINGTON
NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____

Approved Construction Plan

Name	Date
Planning	_____
Traffic	_____
Fire	_____

REV. NO.	REVISIONS	DATE
3	REVISIONS \ TRC COMMENTS	4-21-2022
2	REVISIONS \ TRC COMMENTS	4-05-2022
1	REVISIONS \ TRC COMMENTS	2-03-2022

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PRELIMINARY PLAN

Stormwater and Erosion & Sediment Control Details
OFF THE HOOK YACHT SALES
N.E. CAPE FEAR RIVER FACILITY
CAPE FEAR TOWNSHIP, NEW HANOVER COUNTY, NORTH CAROLINA

Date: 5-5-2022
Scale: N/A
Drawn: AHG
Checked: AHG
Project No: 4372

OWNER:
OTH REALTY LLC
1701 N.J.E.L. WADE DR.
WILMINGTON N.C. 28401

HANOVER DESIGN SERVICES, P.A.
LAND SURVEYORS, ENGINEERS & LAND PLANNERS
1123 FLORAL PARKWAY
WILMINGTON, N.C. 28403
PHONE: (910) 343-6102
LICENSE # C-6897

Sheet No:
EC-4
EC-4