

PLAN SUBMITTAL DATES
CONSTRUCTION PLAN SUBMITTAL 1: APRIL 28, 2022

1700 HILLANDALE ROAD

DURHAM, NORTH CAROLINA

PROJECT DATA

PARCEL 1 Pool of Pond Partners LLC 2200 CHESTERFIELD AVE PIN 0812-98-07723 PID 124974 ZONING PDR 7.838 TIER URBAN USE VACANT	PARCEL 2 Pool of Pond Partners LLC 1734 HILLANDALE RD PIN 0812-98-15-8157 PID 124971 ZONING PDR 7.838 TIER URBAN USE VACANT	PARCEL 3 Pool of Pond Partners LLC 1732 HILLANDALE RD PIN 0812-98-15-8157 PID 124972 ZONING PDR 7.838 TIER URBAN USE VACANT	PARCEL 4 Pool of Pond Partners LLC 1728 HILLANDALE RD PIN 0812-98-15-8157 PID 124973 ZONING PDR 7.838 TIER URBAN USE RES1-FAMILY
PARCEL 5 Pool of Pond Partners LLC 1726 HILLANDALE RD PIN 0812-98-16-7471 PID 124975 ZONING PDR 7.838 TIER URBAN USE RES1-FAMILY	PARCEL 6 Pool of Pond Partners LLC 1724 HILLANDALE RD PIN 0812-98-15-7748 PID 124976 ZONING PDR 7.838 TIER URBAN USE RES1-FAMILY	PARCEL 7 Pool of Pond Partners LLC 1716 HILLANDALE RD PIN 0812-98-15-7122 PID 124977 ZONING PDR 7.838 TIER URBAN USE VACANT	PARCEL 8 Pool of Pond Partners LLC 1714 HILLANDALE RD PIN 0812-98-14-6491 PID 124978 ZONING PDR 7.838 TIER URBAN USE VACANT
PARCEL 9 Pool of Pond Partners LLC 1714 HILLANDALE RD PIN 0812-98-16-6475 PID 124979 ZONING PDR 7.838 TIER URBAN USE RES1-FAMILY	PARCEL 10 Pool of Pond Partners LLC 1710 HILLANDALE RD PIN 0812-98-12-6544 PID 124980 ZONING PDR 7.838 TIER URBAN USE RES1-FAMILY	PARCEL 11 HILLANDALE PARTNERS LLC 2200 CHESTERFIELD AVE PIN 0812-98-08-4296 PID 124981 ZONING PDR 7.838 TIER URBAN USE VACANT	PARCEL 12 Pool of Pond Partners LLC 2300 CHESTERFIELD AVE PIN 0812-98-56-0544 PID 124982 ZONING PDR 7.838 TIER URBAN USE VACANT
PARCEL 13 Pool of Pond Partners LLC 2400 CHESTERFIELD AVE PIN 0812-98-04-5090 PID 125000 ZONING PDR 7.838 TIER URBAN USE VACANT			

ZONING:	EXISTING: PDR 7.838	PROPOSED: NO CHANGE
DEVELOPMENT TIER:	SUBURBAN	
RIVER BASIN:	NEUSE	
REGULATORY BASIN:	FALLS LAKE	
TOTAL SITE AREA:		
GROSS RED WEDICATION	513,357 SF (11.79 AC)	
NET	14,625 SF (0.34 AC)	498,732 SF (11.45 AC)
AREA OF DISTURBANCE:	381,962 SF (8.77 AC)	
SITE AREA IN 100 YEAR FLOOD PLAIN:	0 AC, FEMA MAP# 37200813001, EFFECTIVE MAY 2, 2006	
BUILDING DATA:		
TOTAL:	81 TOWN HOMES	
DENSITY:	81 / 1146 AC = 7.07 UNITS / AC	
BUILDING SETBACKS:	TOUHOUSE	
FRONT YARD:	5' MIN.	
SIDE YARD:	N/A	
REAR YARD:	N/A	
BUILDING SEPARATION:	10' MIN.	
OPEN SPACE:		
COMMITTED:	17% = 2.0 AC (Z1800032)	
PROPOSED:	2.0 AC	
TREE PRESERVATION:		
COMMITTED:	17% = 2.0 AC (Z1800032)	
PROPOSED:	17%	
LANDSCAPE BUFFERS:		
REQUIRED:	RE: SD-7.0	
VEHICULAR PARKING:		
REQUIRED:	MIN. 2 PER UNIT 81 UNITS x 2 = 162 SPACES MIN. 162 / 1.75 = 284 SPACES MAX.	
HOUSEHOLD LIVING:		
PROPOSED:	81 DRIVEWAY 83 SINGLE GARAGE 18 DOUBLE GARAGE 14 ON-STREET (PARALLEL) 16 ON-STREET (1 VAN ADA) 192 TOTAL SPACES	
BICYCLE PARKING:		
REQUIRED:	N/A	
PROPOSED:	0	
IMPERVIOUS SURFACE:		
EXISTING:	23,085 SF (0.530 AC)	
PROPOSED:	194,132 SF (4.457 AC)	

PROJECT NOTES

- BOUNDARY AND TOPOGRAPHIC INFORMATION BASED ON SURVEY PROVIDED BY THOMPSON AND ASSOCIATES
- PUBLIC WATER IS AVAILABLE TO THIS PROJECT.
- ANY NEW UTILITIES ARE TO BE INSTALLED UNDERGROUND.

RESOURCE ORDINANCE COMPLIANCE

FLOOR PLAN PROTECTION:	NO FLOOD PLAN AS PER EFFECTIVE FEMA MAP NUMBER 37200813001 (MAY 2, 2006)
WETLANDS PROTECTION:	NO WETLANDS ARE LOCATED ON THIS SITE.
STREAM BUFFERS:	STREAM BUFFERS ARE LOCATED ON THE SITE. IMPACTS ARE SHOWN AND WILL BE PERMITTED THROUGH NCEEP AND USACE.
TREE COVERAGE AREA:	TREE COVERAGE IS REQUIRED.

EROSION CONTROL NOTES

- IF MORE THAN 12,000 SQ. FT. OF AREA IS DISTURBED, A LAND-DISTURBING PERMIT WILL BE REQUIRED PRIOR TO THE COMMENCEMENT OF ANY LAND-DISTURBING ACTIVITY.
- IF MORE THAN 20,000 SQ. FT. IS DISTURBED, A SEDIMENTATION AND EROSION CONTROL PLAN MUST BE SUBMITTED AND APPROVED PRIOR TO THE ISSUANCE OF A LAND-DISTURBANCE PERMIT.
- IF TREE PROTECTION IS REQUIRED BY THE CITY/COUNTY PLANNING DEPARTMENT, TREE PROTECTION CERTIFICATION MUST BE SUBMITTED TO THE DURHAM COUNTY EROSION CONTROL DIVISION, AND TREE PROTECTION INSPECTION COMPLETED PRIOR TO THE ISSUANCE OF A LAND-DISTURBANCE PERMIT.
- IF AN OFFSITE SOIL SPOIL OR BORROW SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE SPOIL/BORROW SITE MUST BE INCLUDED IN THE LAND-DISTURBANCE PLAN AND PERMIT UNLESS THE SPOIL/BORROW SITE CLEARLY INDICATED LIMITS OF DISTURBANCE ARE SHOWN ON THE GRADING PLAN.

DURHAM STANDARD NOTES

- NC DWR BUFFER AUTHORIZATION NOTE: BUFFER AUTHORIZATION BY THE NORTH CAROLINA DIVISION OF WATER RESOURCES (NC DWR) IS REQUIRED PRIOR TO CONSTRUCTION DRAWING APPROVAL. SITE PLAN CHANGES OCCURRING AS A RESULT OF ALTERATIONS NEEDED TO RECEIVE BUFFER AUTHORIZATION MAY RESULT IN THE NEED FOR A SITE PLAN AMENDMENT OR A NEW SITE PLAN BASED ON THE SCOPE OF THE REQUIRED CHANGES. IF A SITE PLAN AMENDMENT OR NEW SITE PLAN IS REQUIRED, IT MUST BE APPROVED PRIOR TO CONSTRUCTION DRAWING APPROVAL. CONTACT THE DURHAM CITY-COUNTY PLANNING DEPARTMENT AT 919-560-4326 TO DETERMINE IF A SITE PLAN AMENDMENT OR A NEW SITE PLAN WILL BE REQUIRED.
- STREAM BUFFERS: 50' FOOT WIDE UNDISTURBED STREAM BUFFERS, MEASURED FROM TOP OF BANK, EACH SIDE OF STREAM, NO CLEARING OR GRADING OTHER THAN SELECTIVE THINNING AND ORDINARY MAINTENANCE OF EXISTING VEGETATION PERMITTED, EXCEPT IN ACCORDANCE WITH 15A NCAC 02B.233 (6), VEGETATION MANAGEMENT, NO STRUCTURES OR FEATURES REQUIRING GRADING OR CONSTRUCTION MAY BE BUILT WITHIN THE 10-FOOT STREAM BUFFER SETBACK. ANY USE ALLOWED BY SECTION 8.5.5 OF THE UDO SHALL BE DESIGNED TO MINIMIZE THE AMOUNT OF INTRUSION INTO THE STREAM BUFFER AND TO MINIMIZE CLEARING, GRADING, EROSION AND WATER QUALITY DEGRADATION. (UDO SECTION 8.5.)
- LANDSCAPE MULCH: PINE STRAW SHALL NOT BE USED AS MULCH OR GROUNDCOVER WITHIN TEN FEET OF ANY STRUCTURES CONSISTING OF EXTERIOR COMBUSTIBLE CONSTRUCTION AS SPECIFIED BY DURHAM CITY CODE SECTION 46-87.
- LANDSCAPE/SITE COMPLIANCE INSPECTION: ALL SITE IMPROVEMENTS, INCLUDING LANDSCAPING, MUST BE IN PLACE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE. CONTACT THE DURHAM CITY-COUNTY PLANNING DEPARTMENT SITE COMPLIANCE STAFF TO SCHEDULE AN INSPECTION. SITE COMPLIANCE INSPECTION FEES MUST BE RECEIVED BY THE DURHAM CITY-COUNTY PLANNING DEPARTMENT PRIOR TO SCHEDULING AN INSPECTION. IF A RE-INSPECTION IS REQUIRED, AN ADDITIONAL INSPECTION FEE MUST BE RECEIVED BY THIS OFFICE PRIOR TO THE RE-INSPECTION.
- STREET TREE NOTE FOR ALL SITE PLANS/PRELIMINARY PLATS AND FINAL PLATS WHERE TREES WILL BE PLANTED: STREET TREES MEETING THE REQUIREMENTS OF UDO SECTION 9.6 SHALL BE PLANTED PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE, UNLESS THE PLANTING HAS BEEN POSTPONED IN ACCORDANCE WITH THE REQUIREMENTS OF UDO SEC. 9.11.
- YARD TREE NOTE FOR ALL SITE PLANS/PRELIMINARY PLATS AND FINAL PLATS WHERE TREES WILL BE PLANTED: YARD TREES MEETING THE REQUIREMENTS OF UDO SECTIONS 7.1.2C AND 6.8.2C SHALL BE PLANTED PRIOR TO THE ISSUANCE OF A CERTIFICATE OF COMPLIANCE, UNLESS THE PLANTING HAS BEEN POSTPONED IN ACCORDANCE WITH THE REQUIREMENTS OF UDO SEC. 9.11.
- TREE PROTECTION NOTE (UDO SEC. 8.3): TREE PROTECTION FENCE CONSTRUCTED OF A MATERIAL RESISTANT TO DEGRADATION BY SUN, WIND, AND MOISTURE FOR THE DURATION OF THE CONSTRUCTION, MUST BE IN PLACE PRIOR TO ANY DEMOLITION, LAND DISTURBANCE, OR ISSUANCE OF A GRADING PERMIT. SUCH FENCING SHALL BE MOUNTED ON METAL POSTS PLACED NO FURTHER THAN 10 FEET APART. SILT FENCING SHALL NOT SERVE AS TREE PROTECTION FENCING. WARNING SIGNS SHALL BE POSTED AT EACH END OF THE TREE PROTECTION FENCE WITH PERMIETER SIGNS SPACED A MAXIMUM OF 100 FEET ON CENTER THEREAFTER. EACH SIGN SHALL READ: "NO TRESPASSING/TREE PROTECTION AREA" AND "PROHIBITED ENTRY - ZONA PROTECTORA PARA LOS ARBOLES".
- ROOT PROTECTION ZONE (UDO SEC. 8.3): SHALL BE ESTABLISHED AROUND ALL TREES TO BE PRESERVED. THE ROOT PROTECTION ZONE SHALL EITHER BE A CIRCULAR AREA AROUND A TREE OR THE FOOT OF A TRUNK. THE CIRCULAR AREA SHALL BE 8 INCHES INCH DIAMETER AT BREAST HEIGHT (DBH) OF EXISTING TREES, WHICHEVER IS GREATER.
- PROTECTION OF EXISTING VEGETATION (UDO SEC. 8.3): AT THE START OF GRADING INVOLVING THE LOWERING OF EXISTING GRADE AROUND A TREE OR STRIP OF VEGETATION, VERTICAL CUTS SHALL BE MADE AT THE EDGE OF THE TREE SAVE AREA PRIOR TO OR AT THE SAME TIME AS OTHER EROSION CONTROL MEASURES ARE INSTALLED. THE TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THIS CUT FARTHEST AWAY FROM THE TREE TRUNK AND SHALL REMAIN IN PLACE UNTIL ALL CONSTRUCTION IN THE VICINITY OF THE TREES IS COMPLETE. NO STORAGE OF MATERIALS, DUMPING OF WASTE, FILL, OR PARKING OF EQUIPMENT SHALL BE ALLOWED WITHIN THE ROOT PROTECTION ZONE AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE ROOT PROTECTION ZONE.
- UDO SITE LIGHTING NOTE (UDO SEC. 7.4):
 - THE MAXIMUM ILLUMINATION PERMITTED AT THE END OF A PROPERTY LINE SHALL BE AS SET FORTH BELOW, WHERE A DEVELOPMENT IS LIMITED WITH SHARED PARKING OR OTHER MEASURE SHOWN ON A SITE PLAN. THE MAXIMUM ILLUMINATION LEVELS SHALL APPLY ONLY TO THE EXTERIOR LOT LINES OF THE PROJECT (ANY INTERIOR LOT LINES SHALL BE EXEMPT FROM THIS PARAGRAPH).
 - THE MAXIMUM ILLUMINATION AT THE EDGE OF THE PROPERTY LINE ADJACENT TO A RESIDENTIAL ZONING DISTRICT IS 0.5 FOOT-CANDLES.
 - THE MAXIMUM ILLUMINATION AT THE EDGE OF THE PROPERTY LINE ADJACENT TO A NONRESIDENTIAL ZONING DISTRICT IS 5.0 FOOT-CANDLES.
 - THE MAXIMUM ILLUMINATION AT THE EDGE OF THE PROPERTY LINE ADJACENT TO A STREET IS 5.0 FOOT-CANDLES.
 - THE LEVEL OF ILLUMINATION AS MEASURED IN FOOT-CANDLES AT ANY ONE POINT SHALL MEET THE STANDARDS IN THE TABLE IN UDO SECTION 7.4 WITH MINIMUM AND MAXIMUM LEVELS MEASURED ON THE PAVEMENT WITHIN THE DESIGN AREA.
 - THE MAXIMUM HEIGHT FOR DIRECTIONAL OR FULL CUT-OFF LIGHTING FIXTURES (FIXTURES DESIGNED TO INSURE THAT NO LIGHT IS EMITTED ABOVE A HORIZONTAL LINE PARALLEL TO THE GROUND) SHALL BE 30 FEET ABOVE GRADE.
 - THE MAXIMUM HEIGHT FOR NON-DIRECTIONAL LIGHTING FIXTURES, WHICH ARE LIGHTING FIXTURES DESIGNED TO ALLOW LIGHT TO BE EMITTED ABOVE A HORIZONTAL LINE PARALLEL TO THE GROUND, SHALL BE 15 FEET ABOVE GRADE. NON-DIRECTIONAL LIGHTING FIXTURES SHALL BE PROTECTED BY ANTI-GLOMERATION LIGHTING FIXTURES.
 - UNDER-CANOPY LIGHTING SHALL BE RESTRICTED TO LIGHTING FIXTURES (INCLUDING LENSES) THAT DO NOT PROJECT BELOW THE BOTTOM OF THE CANOPY.
 - LIGHTING SHALL NOT BE DIRECT GLARE OR EXCESSIVE ILLUMINATION ONTO STREETS IN A MANNER THAT MAY DISTRACT OR INTERFERE WITH THE VISION OF DRIVERS ON SUCH STREETS.
 - THESE STANDARDS MUST BE VERIFIED BY FIELD SURVEY (BY USE OF PHOTOMETRIC SURVEY) PRIOR TO THE CERTIFICATE OF COMPLIANCE. THE DESIGN PROFESSIONAL, INCLUDING ARCHITECTS, ENGINEERS, AND ARCHITECTS, SHALL BE RESPONSIBLE FOR THE ISSUANCE OF A BUILDING PERMIT.
 - FIRE NOTES TO BE INCLUDED ON COVER SHEET: SAFEGUARDS DURING THE CONSTRUCTION, ALTERATION, OR DEMOLITION OF STRUCTURES SHOWN ON THIS SITE PLAN SHALL BE IN ACCORDANCE WITH CHAPTER 409 OF THE 2018 NORTH CAROLINA FIRE CODE AND NFPA241 (2013 EDITION).
 - FOR COUNTY SOIL AND EROSION CONTROL:
 - A SEDIMENTATION AND EROSION CONTROL PLAN MUST BE SUBMITTED AND APPROVED PRIOR TO THE ISSUANCE OF A LAND-DISTURBANCE PERMIT.
 - IF AN OFFSITE SOIL SPOIL OR BORROW SITE IS UTILIZED, THEN THE DISTURBED AREA FOR THE SPOIL/BORROW SITE MUST BE INCLUDED IN THE LAND-DISTURBANCE PLAN AND PERMIT UNLESS THE SPOIL/BORROW SITE ALREADY HAS A LAND-DISTURBANCE PERMIT.

GENERAL CONDITIONS OF APPROVAL

- THE SITE WILL BE FULLY COMPLIANT WITH THE NORTH CAROLINA ACCESSIBILITY CODES (ANSI 117.1 – 2009 AND CHAPTER 11 OF THE NCCCO) UNLESS AND EXCEPT IN AREAS WHERE AN APPROVED STATEMENT FROM A SITE ENGINEER, SURVEYOR OR ARCHITECT VERIFIES THAT SITE CONDITIONS EXIST WHERE ALTERATION OF THE SITE IS EXTREME AND ONLY ALTERNATE METHODS OF COMPLIANCE ARE POSSIBLE.
- AN AS-BUILT SURVEY OF THE SITE, PERFORMED BY THE DESIGN PROFESSIONAL DESIGNED, MUST BE SUBMITTED TO THE BUILDING INSPECTIONS DEPARTMENT CERTIFYING THAT ALL SITE ACCESSIBILITY CODE REQUIREMENTS SUCH AS CURB CUTS, RAMP SLOPES, SIDEWALK SLOPES AND WIDTHS, AND CROSS SLOPES MEET THE REQUIREMENTS OF THE NC ACCESSIBILITY CODE PRIOR TO CO ISSUANCE.
- THIS DEVELOPMENT IS NOT ELIGIBLE FOR CITY CART COLLECTION. TOWNHOMES WILL BE COLLECTED BY A PRIVATE COMPANY. SOLID WASTE CONTAINMENT CAPACITY AND COLLECTION FREQUENCY WILL BE SUFFICIENT TO PREVENT THE ILLEGAL PLACEMENT OF TRASH AND RECYCLABLES.
- BY REFERENCING ROADWAY IMPROVEMENTS ON THE PLAN, THE APPLICANT AGREES TO CONSTRUCT SAID IMPROVEMENTS PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY IN A MANNER THAT WILL ALLOW THEM TO FUNCTION AS NOTED ON THE PLAN AND IN ACCORDANCE WITH NCDOT AND CITY OF DURHAM STANDARDS AND POLICIES. THIS INCLUDES (WHERE APPROPRIATE) BUT IS NOT LIMITED TO: ADEQUATE TRANSITION TAPERS, ALIGNMENT OF LANES THROUGH INTERSECTIONS, INCLUDED SIGNAL MODIFICATIONS, PAVEMENT MARKINGS, ASSOCIATED SIGNAGE, CURB AND GUTTERS, COORDINATION WITH OTHER PROPOSED ROADWAY IMPROVEMENTS AND BIKE LANES. THE APPLICANT ALSO ACCEPTS THE FINANCIAL RESPONSIBILITY FOR ACQUISITION OF ANY ADDITIONAL RIGHT-OF-WAY NECESSARY TO ACCOMMODATE THESE IMPROVEMENTS AND ANY REQUIRED SIDEWALK CONSTRUCTION.
- THE LOCATION OF THE SIDEWALK SHOWN ON THIS PLAN IS SCHEMATIC. A CITY OF DURHAM AND/OR NCDOT ENCRoACHMENT PERMIT IS REQUIRED PRIOR TO ANY CONSTRUCTION. AFTER OBTAINING THE REQUIRED PERMITS, PLEASE CONTACT THE CITY OF DURHAM ENGINEERING CONSTRUCTION INSPECTION OFFICE AT 560-4326 FOR A PRE-CONSTRUCTION CONFERENCE AND FIELD VISIT PRIOR TO ANY WORK ON THE PROPOSED SIDEWALK.
- PRIOR TO BEGINNING CONSTRUCTION OF THE SCM(S), A PRECONSTRUCTION MEETING SHALL BE SCHEDULED WITH CITY STORMWATER IN ACCORDANCE WITH THE STANDARD PUBLIC WORKS' STORMWATER NOTE ON THE PLANS. THIS MEETING SHOULD BE SEPARATE FROM THE ENGINEERING INSPECTIONS' PRECONSTRUCTION MEETING AND SCHEDULING IT IS THE RESPONSIBILITY OF THE OWNER/DEVELOPER/ENGINEER. THE MEETING MUST BE ATTENDED BY THE PROJECT CONTRACTOR RESPONSIBLE FOR SCM CONSTRUCTION, THE BMP CERTIFYING ENGINEER (BCE) WHO HAS BEEN SECURED TO PROVIDE THE AS-BUILT CERTIFICATION, AND THE GEOTECHNICAL ENGINEER (REQUIRED WHEN EARTHEN DAMS INVOLVED). WATER/SEWER PERMITS WILL NOT BE ISSUED OR WHEN SUCH PERMITS ARE NOT REQUIRED, FINAL CONSTRUCTION DRAWING APPROVAL WILL NOT BE GRANTED UNTIL THIS MEETING HAS BEEN SCHEDULED.
- THE DEVELOPER IS RESPONSIBLE FOR FABRICATION AND INSTALLATION OF ALL REQUIRED SIGNS AND PAVEMENT MARKINGS WITHIN THE PUBLIC RIGHT-OF-WAY. THE DEVELOPER SHALL SUBMIT A SIGNING AND MARKINGS PLAN TO THE CITY AT CONSTRUCTION PLAN STAGE FOR REVIEW AND APPROVAL. ALL SIGNS AND PAVEMENT MARKINGS SHOWN ON THE CONSTRUCTION PLANS, MUST BE IN PLACE PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY AND/OR STREET ACCEPTANCE, AS DETERMINED BY THE CITY.
- OPEN SPACE, BOTH GENERAL AND RECREATION, SHALL BE DEDICATED TO THE HOMEOWNERS ASSOCIATION.

SPECIAL CONDITIONS OF APPROVAL

- ANY ROAD IMPROVEMENTS ON HILLANDALE ROAD WILL BE COORDINATED WITH THE CITY'S PROJECT PLAN FOR CITY PROJECT #SW-460/TIP #1-4726 HW.
 - SITE ACCESS #1 SHALL BE CONSTRUCTED AS A LIMITED MOVEMENT INTERSECTION WITH ONE INGRESS LANE AND ONE EGRESS LANE. THE EGRESS LANE SHALL BE CONSTRUCTED WITH ADEQUATE INTERNAL PROTECTED STORAGE (IPS) BEFORE ANY PARKING OR CROSSING MANEUVERS AND BE RESTRICTED TO RIGHT TURN ONLY.
 - MAINTAIN TWO FULL THROUGH LANES FOR BOTH SOUTHBOUND AND NORTHBOUND TRAFFIC ON HILLANDALE ROAD FROM A POINT 500 FEET SOUTH OF THE INTERSECTION WITH I-85 NB NORTHWARD OF THE INTERCHANGE. THIS DISTANCE IS SUBJECT TO CHANGE TO MAINTAIN TWO NORTHBOUND THROUGH LANES IF THE DRIVEWAY IF THE DRIVEWAY IS SHIFTED FURTHER SOUTH.
- PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY**
- CONSTRUCT AN EXCLUSIVE SOUTHWEST LEFT TURN LANE ON HILLANDALE ROAD TO SITE ACCESS #1 WITH ADEQUATE STORAGE AND MARKINGS WITHIN RIPARIAN BUFFERS AND PERMITTED THROUGH THE CITY.
 - CONSTRUCT A SECOND NORTHBOUND THROUGH LANE ON HILLANDALE ROAD ALONG THE PROPERTY FRONTAGE TO THE SOUTHERN PROPERTY LINE. FINAL LOCATION TO BE DETERMINED AT SITE PLAN.
- PRIOR TO ISSUANCE OF A BUILDING PERMIT**
- A RECOGNITION PLAT SHALL BE RECORDED PRIOR TO THE ISSUANCE OF ANY BUILDING PERMIT.
 - ALTERNATE ADDITIONAL RIGHT-OF-WAY FOR THE FRONTAGE OF THE SITE ALONG HILLANDALE ROAD AS NOTED ON SHEET SD-2.0. A COPY OF THE RECORDED PLAT MUST BE SUBMITTED WITH THE FIRST BUILDING PERMIT.
- PRIOR TO SITE PLAN APPROVAL**
- RIGHT-OF-WAY FOR UNBUILT CHESTERFIELD AVENUE AND UNBUILT PORTIONS OF SOVEREIGNS STREET AND DRAKE AVENUE UP TO PROPERTY LINE MUST BE LEGALLY CLOSED.

PUBLIC WORKS CONDITIONS OF APPROVAL

- The designing professional (a NCEP, NCEPLS or NCR/LA/NCPLA – as required) shall submit three (3) sets of construction drawings to the Public Works Department – Development Review for review and approval. Construction drawing approval is required prior to commencing construction (see Construction Plan Approval Process). The approval of construction drawings is separate from site plan approval. City officials shall review all sizes, materials, slopes, locations, extensions and depths for all proposed utilities (waterlines, sanitary sewer lines and storm drainage conveyance systems) for compliance with all applicable regulatory standards, specifications, and best management practices.
- The designing professional (a NCEP, NCEPLS or NCR/LA/NCPLA as required) shall submit one (1) set of as-built drawings to the Public Works Department – Development Review for review and approval. As-built drawing approval is required prior to water meter installation and/or sanitary sewer service connection and prior to issuance of a certificate of occupancy.
- The design professional is required to review and approve as part of the construction drawing approval process. To schedule a flow test or to obtain current system data, complete the online application at <http://codinet.durhamnc.gov/sites/PublicWorks/SitePages/FireX2020Flow20Request.aspx>.
- If a meter 2' or larger is proposed, contact Water Management at 919-560-4381 prior to the construction of the meter vault to verify the type and dimensions of the sidewalks shown on this plan is schematic.
- Water permit required after construction drawing approval and prior to commencing water main installation.
- Sewer permit required after construction drawing approval and prior to commencing sanitary sewer main installation.
- Sewer permit from Durham County required. Contact Durham County Utility Division at 919-560-9033.
- An NCDOT or a City of Durham Driveway Permit is required.
- The location of the sidewalks shown on this plan is schematic. A City of Durham and/or NCDOT encroachment permit is required prior to any construction. After obtaining the required permits, please contact the City of Durham Engineering Construction Inspection office at 919-560-4326 for a pre-construction conference and field visit prior to any work on the proposed sidewalk.
- A Utility Mainline Construction permit is required prior to the installation of each utility. All utilities shall submit plan drawings and applications to the City Engineering Division.
- The driving and parking areas shown on this Final Plat noted as "Private Access and Common Areas" do not meet City of Durham street standards. The features and infrastructure within these areas are private and will not be eligible for public maintenance. [Insert subdivision name] Homeowners Association and its members will own and be responsible for the maintenance and repair of the Private Access and Common Areas and all of the private infrastructure within them (water, sewer, storm, pavement, sidewalks, curbs, etc.).

- STORMWATER DIVISION**
- At a minimum, the stormwater design details for this project shall be governed by the minimum standards of the most recent edition of the City of Durham Reference Guide for Development (RDG) and any Letters to Industry posted on the City's website that are in effect the date Construction Drawings are first received for review by the City.
 - Final design calculations for storm control measure(s) (SCM(s)) require the use of storage indication routing methodology such as TR-20 or HEC-1 models. For each SCM, as applicable, storage-storage relationship and inflow and outflow hydrographs are required. All tabulated data including calculations showing the limiting discharge, whether orifice, weir, barrel, or outlet control, as appropriate is required. HydroCAD, Hydroflow Hydrographs, and PondPack are recognized software programs which incorporate routing methodology accepted by the City.
 - Use for residential developments with a Homeowners Association: Stormwater control measure(s) (SCM(s)) permit fees and a payment into the Stormwater Placement Fund are required for all SCM(s) associated with this development. Construction of the development is not allowed to commence until these items are provided in accordance with City Stormwater Standards or in accordance with written policy. The designer shall submit a sealed engineer's construction cost estimate for every SCM proposed in the development prior to approval of the construction drawings.
 - An as-built certification for the stormwater control measure(s) (SCM(s)), provided by the certifying engineer, is required. The as-built certification shall be submitted in accordance with the City of Durham SCM As-Built Program, refer to Section 8.6. As-built Certification Requirements for SCMs in the City of Durham, of the Reference Guide for Development. The SCM as-built certification(s) shall be approved by the Stormwater Development Review Section prior to issuance of any final certificates of occupancy/compliance for development, with the exception of when an appropriate construction security has been provided for single family or townhome development. With this provided construction security, certificates of occupancy/compliance can be issued for a percentage of single family lots in accordance with City requirements.
 - Stormwater control measure(s) (SCM(s)) design calculations will not be reviewed or approved with the Site Plan/Preliminary Plat submittal. All SCM designs will be reviewed and approved during the construction drawing submittal process. It is the responsibility of the applicant to insure that the applicable stormwater ordinance requirements are met. A revised site plan or preliminary plat may be required if the originally proposed SCM(s) are found insufficient, not properly accessible, or unsuitable or alternative SCM(s) with associated assessments are required.
 - The Developer/Contractor shall schedule a preconstruction meeting with the Stormwater Development Review section prior to commencing work on any Stormwater Control Measure (SCM). If the SCM will be constructed initially as a Sedimentation and Erosion Control (S&EC) device, to be converted to a permanent SCM at a later time, the preconstruction meeting shall occur prior to construction of the S&EC device. Call 919-560-4326 Ext. 30238 to schedule the required meeting a minimum of three business days prior to the desired meeting date. This is in addition to other preconstruction meeting requirements for erosion control, engineering inspections, etc.
 - Use for Single Family and Townhome Developments: Stormwater placement making use of a nutrient bank and/or the North Carolina Division of Mitigation Services (NC Ecosystem Enhancement Program) when insufficient credits are available from the nutrient banks: To receive construction drawings approval for Single Family Detached, Townhome and Duplex Residential Developments that are making use of nutrient banks and/or the NCEP, the approval of the construction drawings is contingent upon the purchase of a copy of the nutrient bank ledger. If applicable showing the total nutrient credits available minus any and all deductions, it is to be provided to the Stormwater Development Review Section. However, if insufficient credits are available from nutrient banks and NCEP will not accept payment, then the applicant shall submit a revised site plan/preliminary plat and book to the Durham County Planning Department and shall comply with the current Stormwater Performance Standards in place at the time of the revised site plan/preliminary plat submission.

DESIGN COMMITMENTS

- ARCHITECTURAL STYLE:**
THE STYLE OF BUILDINGS WILL BE ANY VARIETY OF THE FOLLOWING: CRAFTSMAN, PRAIRIE, COLONIAL REVIVAL, OR TUDOR.
- ROOFLINES:**
SLOPE OR HIPPED ROOFS WILL BE USED SINGLY OR IN COMBINATION.
- BUILDING MATERIALS:**
PRIMARY BUILDING MATERIAL TO BE USED SHALL BE A CHOICE OR COMBINATION OF THE FOLLOWING MATERIALS: STONE, WOOD, BRICK, TERRA COTTA, CEMENTITIOUS AND/OR COMPOSITE SIDING APPLIED TO RESEMBLE TRADITIONAL WOOD LAP SIDING. EXTERIOR TRIM, INCLUDING MOLDING, SILLS, CORNER BOARDS, WINDOW AND DOOR TRIMMINGS, AND DECORATIVE ARCHITECTURAL FEATURES SHALL BE LIMITED TO STONE, WOOD, BRICK, TERRA COTTA, METAL, CEMENTITIOUS MATERIAL, CONCRETE AND/OR COMPOSITE MATERIALS. NO VINYL OR ALUMINUM CLADDING SHALL BE ALLOWED ON THE WALLS. HOWEVER, VINYL-CLAD WOOD MAY BE USED FOR WINDOWS, DOORS, AND/OR SOFFITS. FINISH SHEATHING FOR SLOPING GRADES SHALL BE LIMITED TO FIBERGLASS, SLATE, SYNTHETIC SLATE, COMPOSITE, GLASS, ASPHALT SHINGLES, OR PER-FINISHED METAL. EXPOSED WOOD BURNING CHIMNEYS, IF ANY, SHALL HAVE BRICK EXTERIORS.
- DISTINCTIVE ARCHITECTURAL FEATURING:**
BUILDINGS SHALL NOT HAVE A DISTINCTIVE STYLING. STYLISTIC FEATURES MAY INCLUDE PROMINENT FRONT PORCHES AND ATTIC DORMERS, DOUBLE HUNG WINDOWS WITH MULTI-LIGHT SASHES OR WITH A SIMULATED MULTI-LIGHT SASH OVER A SINGLE PANE SLASH, AND OVERHANGING EAVES.
- CONTEXT:**
THE PROPOSED TOWNHOMES WILL SERVE AS A TRANSITION OF INTENSITY AND SCALE FROM THE HIGHER DENSITY, COMMERCIAL USE OF OFFICE AND RETAIL TO THE NORTH TO THE LOWER DENSITY SINGLE FAMILY RESIDENTIAL TO THE EAST AND SOUTH.
- ARCHITECTURAL COMMENTS:**
- NO BUILDING MAY BE LONGER THAN 144 FEET IN LENGTH.
 - BUILDINGS OTHER THAN SINGLE FAMILY DETACHED UNITS, IF ANY, MAY CONTAIN UP TO SIX UNITS. NO MORE THAN 75% OF THE DWELLING UNITS MAY BE CONTAINED IN BUILDINGS CONTAINING MORE THAN FIVE UNITS.
 - NO BUILDING SHALL EXCEED THREE FULL STORIES IN HEIGHT. BASEMENTS AND GARAGES LOCATED BELOW GRADE SHALL NOT BE COUNTED AS STOREYS. BUILDINGS LOCATED WITHIN 75 FEET OF THE REAR PROPERTY LINES OF THE LOTS ON TAMPA AVENUE THAT ARE ADJACENT TO THE PROJECT, SHALL NOT EXCEED THE LOWER OF 35 FEET OR TWO FULL STORIES IN HEIGHT, EXCLUDING BASEMENTS OR LOWER LEVELS OF LIVING SPACE.
 - SOLAR PANELS SHALL BE ALLOWED.
 - EXTERIOR SITE AND BUILDING LIGHTING SHALL BE DIRECTED TOWARDS OR SHALL BE OF SUCH BRIGHTNESS SO AS TO NOT PRESENT UNREASONABLE OR EXCESSIVE GLARE TOWARDS HOUSES LOCATED ON TAMPA AVENUE THAT ARE ADJACENT TO THE PROJECT, AND TAMPA AVENUE HOUSES WILL CONFORM TO THE SAME LIGHTING STANDARDS AS THE PROJECT.
 - EXTERIOR LIGHTING SHALL BE LIMITED TO ONE LIGHT FIXTURE PER GARAGE.
 - GARAGE OPENINGS SHALL NOT EXCEED 75% OF A UNIT'S FRONT FACADE.
 - DETACHED GARAGES SHALL BE ALLOWED. NO DETACHED GARAGE BUILDING SHALL CONTAIN MORE THAN SIX SINGLE CAR-WIDTH BAYS OR EXCEED 18 FEET IN HEIGHT, UNLESS IT CONTAINS AN ACCESSORY DWELLING UNITS OR OTHER FINISHED SPACE ABOVE. DETACHED GARAGES SHALL CONFORM TO DESIGN STANDARDS IN THIS DEVELOPMENT PLAN.

TEXT COMMITMENTS

- DEVELOPMENT SHALL BE LIMITED TO SINGLE-FAMILY DETACHED AND/OR TOWNHOUSE STYLE APARTMENTS AND/OR TOWNHOUSE UNITS, 85 UNITS MAXIMUM. ALL PERMITTED ACCESSORY USES SHALL BE ALLOWED.
- VEHICULAR ACCESS SHALL BE LIMITED TO THE REAR YARD.
- PER UDO SECTION 3.5.12A.12, THE SITE WILL BE LIMITED TO A MAXIMUM OF 149 PEAK HOUR TRIPS.
- RIGHT-OF-WAY FOR UNBUILT CHESTERFIELD AVENUE AND UNBUILT PORTIONS OF SOVEREIGNS STREET AND DRAKE AVENUE UP TO PROPERTY LINE MUST BE LEGALLY CLOSED PRIOR TO SITE PLAN APPROVAL.
- ANY ROAD IMPROVEMENTS ON HILLANDALE ROAD WILL BE COORDINATED WITH THE CITY'S PROJECT PLAN FOR CITY PROJECT #SW-460/TIP #1-4726 HW).
- PRIOR TO ISSUANCE OF A BUILDING PERMIT, A RESERVATION OF ADDITIONAL RIGHT-OF-WAY ON THE FRONTAGE OF THE SITE ALONG HILLANDALE ROAD SHALL BE OBTAINED FROM THE CITY OF DURHAM.
- PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY, CONSTRUCT AN EXCLUSIVE SOUTHWEST LEFT TURN LANE ON HILLANDALE ROAD TO SITE ACCESS #1 WITH ADEQUATE STORAGE AND APPROPRIATE TAPER. FINAL LOCATION OF SITE ACCESS #1 IS TO BE DETERMINED AT SITE PLAN.
- SITE ACCESS #1 SHALL BE CONSTRUCTED AS A LIMITED MOVEMENT INTERSECTION WITH ONE INGRESS LANE AND ONE EGRESS LANE. THE EGRESS LANE SHALL BE CONSTRUCTED WITH ADEQUATE INTERNAL PROTECTED STORAGE (IPS) BEFORE ANY PARKING OR CROSSING MANEUVERS AND BE RESTRICTED TO RIGHT TURN ONLY.
- MAINTAIN TWO FULL THROUGH LANES FOR BOTH SOUTHBOUND AND NORTHBOUND TRAFFIC ON HILLANDALE ROAD FROM A POINT 500 FEET SOUTH OF THE INTERSECTION WITH I-85 NB NORTHWARD OF THE INTERCHANGE. THIS DISTANCE IS SUBJECT TO CHANGE TO MAINTAIN TWO NORTHBOUND THROUGH LANES IF THE DRIVEWAY IF THE DRIVEWAY IS SHIFTED FURTHER SOUTH.
- ISSUANCE OF OCCUPANCY: CONSTRUCT A SECOND NORTHBOUND THROUGH LANE ON HILLANDALE ROAD ALONG THE PROPERTY FRONTAGE TO THE SOUTHERN PROPERTY FRONTAGE TO THE SOUTHERN PROPERTY LINE. FINAL LOCATION TO BE DETERMINED AT SITE PLAN.
- NO NON-RESIDENTIAL BUILDING SHALL BE ALLOWED. HOWEVER, THE PROJECT MAY INCLUDE ADMINISTRATIVE SPACES FOR THE MANAGEMENT OF THE PROJECT AND SOCIAL/RECREATIONAL SPACES FOR THE BENEFIT OF THE RESIDENTS.
- STORMWATER CONTROL MEASURES FOR THIS PROJECT SHALL BE DESIGNED SO THAT THERE IS NO INCREASE IN THE PEAK FLOW FOR 100-YEAR, 24-HOUR STORM DRAINAGE OF THE SITE.
- THERE SHALL BE NO BUILDINGS, ROADWAYS, DRIVES, PARKING, OR STORMWATER CONTROL MEASURES LOCATED TO THE EAST OF THE RIPARIAN BUFFERS. VEGETATION WITHIN RIPARIAN BUFFERS AND PROJECTS LOCATED EAST OF THE RIPARIAN BUFFERS SHALL REMAIN NATURAL, HOWEVER ROUTINE MAINTENANCE SHALL BE ALLOWED.
- AREAS FOR CHARGING STATIONS FOR ELECTRIC VEHICLES, BIKE-SHARING PICKUP AND PARKING, BICYCLE STORAGE AND PARKING SHALL BE ALLOWED.
- DEVELOPER SHALL MAKE A ONE-TIME DONATION OF \$12,000 TO THE AFFORDABLE HOUSING FUND PRIOR TO THE ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY.
- DEVELOPER SHALL MAKE A ONE-TIME DONATION OF \$10,000 TO DURHAM PUBLIC SCHOOLS PRIOR TO ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY.

OWNER

HILLANDALE PARTNERS LLC
1201 EDWARDS MILL RD., SUITE 300
RALEIGH, NC 27607

APPLICANT / CONSULTANTS

LANDSCAPE ARCHITECT:
COULTER JEWELL THAMES PA
111 WEST MAIN STREET
DURHAM, NC 27701
919-682-0368
CONTACT: JEREMY ANDERSON

CIVIL ENGINEER:
COULTER JEWELL THAMES PA
111 WEST MAIN STREET
DURHAM, NC 27701
919-682-0368
CONTACT: PRESTON ROYSTER

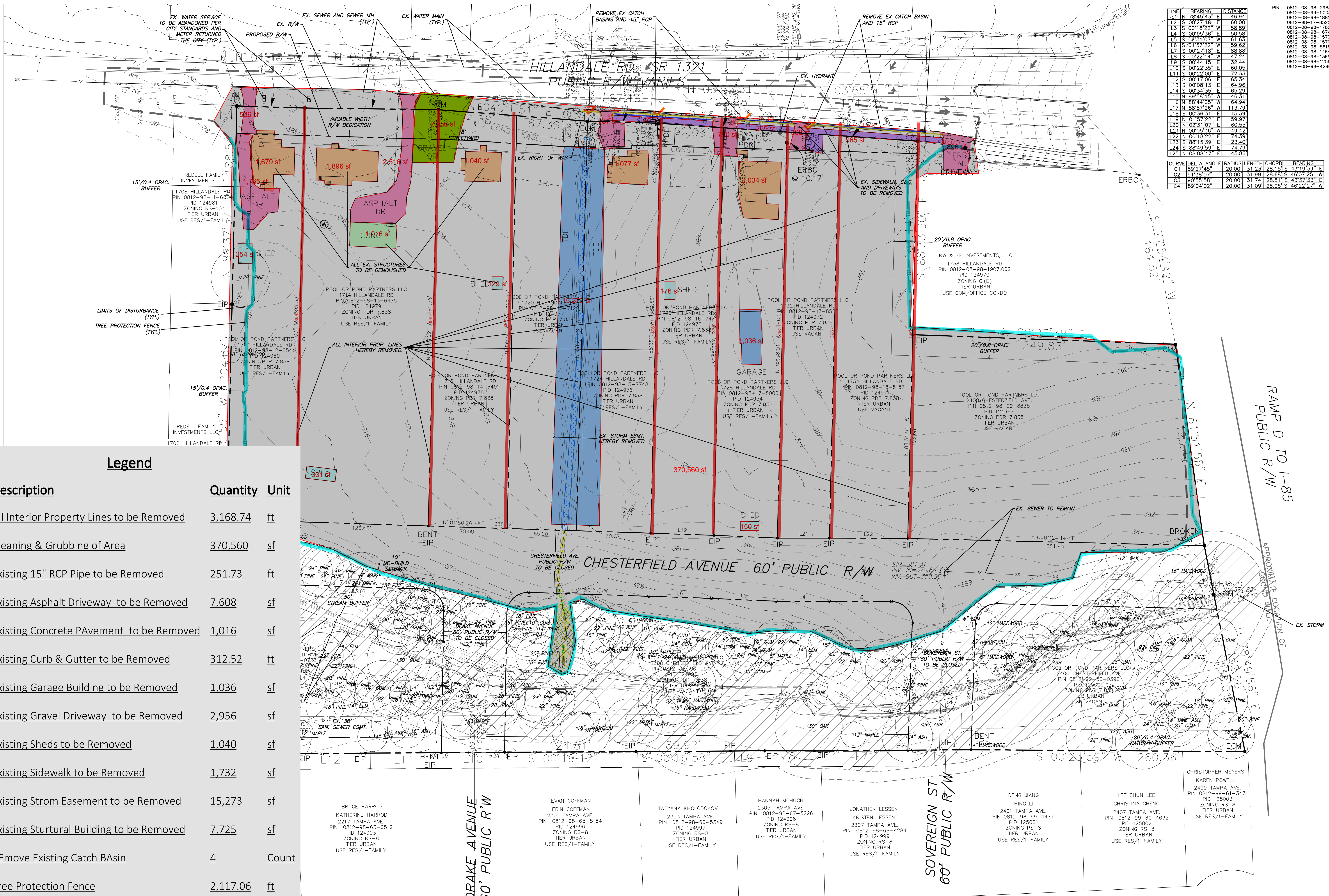
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0812-08-98-5003
0812-08-98-1881
0812-98-17-8525
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0812-08-98-1571
0812-08-98-5616
0812-08-05-1464
0812-08-98-1365
0812-08-98-1365
0812-08-98-4296

VICINITY MAP



LIST OF SHEETS

- | | |
|--------|---------------------------------------|
| CD-0.0 | COVER SHEET |
| CD-0.1 | NOTES |
| CD-1.0 | EXISTING CONDITIONS / DEMOLITION PLAN |
| CD-2.0 | SITE LAYOUT PLAN |
| CD-3.0 | GRADING / STORM DRAINAGE PLAN |
| CD-3.1 | GRADING / STORM DRAINAGE NOTES |
| CD-3.2 | IORTENATION AREA 2 DETAILS |
| CD-3.3 | BIORETENTION AREA 2 DETAILS |
| CD-4.0 | EROSION CONTROL PLAN PHASE 1 |
| CD-4.1 | EROSION CONTROL PLAN PHASE 2 |
| CD-5.0 | UTILITY PLAN |
| CD-5.1 | SANITARY SEWER PLAN & PROFILE |
| CD-5.2 | SANITARY SEWER PLAN & PROFILE |
| CD-5.3 | SANITARY SEWER PLAN & PROFILE |
| CD-6.0 | LIGHT |



LINE	BEARING	DISTANCE
L1	N 78°45'43" E	46.94
L2	S 00°27'18" E	60.00
L3	S 00°18'22" W	58.89
L4	S 00°05'45" W	50.58
L5	S 02°31'07" W	61.63
L6	S 01°57'22" W	59.62
L7	S 00°27'18" E	88.96
L8	S 00°22'14" W	47.24
L9	S 00°44'15" E	32.44
L10	S 00°22'35" E	60.05
L11	S 02°22'00" E	72.33
L12	S 00°17'06" E	65.34
L13	S 00°08'13" E	64.96
L14	S 00°34'35" E	65.29
L15	N 89°58'15" W	48.31
L16	N 88°44'05" W	64.94
L17	N 88°57'25" W	113.79
L18	S 02°36'31" E	15.39
L19	S 01°57'22" E	59.97
L20	S 02°31'07" E	60.55
L21	S 00°05'36" W	49.42
L22	N 00°18'22" E	74.39
L23	S 88°15'39" E	23.40
L24	S 88°49'59" E	74.79
L25	N 08°08'47" E	45.68

CURVE	DELTA	ANGLE	RADIUS	LENGTH	CHORD	BEARING
C1	89°27'43"	20.00°	31.231	28.151	4.319	39° E
C2	91°38'07"	20.00°	31.991	28.688	4.607	25° W
C3	90°55'58"	20.00°	31.774	28.511	4.337	33° E
C4	89°04'02"	20.00°	31.091	28.051	4.622	27° W

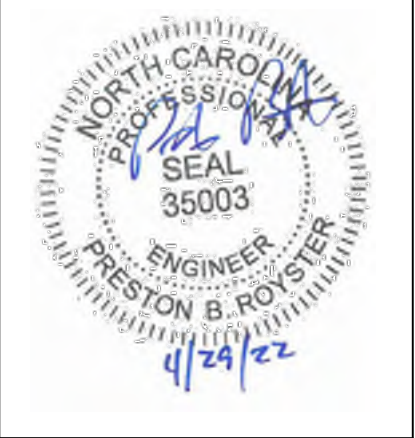
Description	Quantity	Unit
All Interior Property Lines to be Removed	3,168.74	ft
Cleaning & Grubbing of Area	370,560	sf
Existing 15" RCP Pipe to be Removed	251.73	ft
Existing Asphalt Driveway to be Removed	7,608	sf
Existing Concrete Pavement to be Removed	1,016	sf
Existing Curb & Gutter to be Removed	312.52	ft
Existing Garage Building to be Removed	1,036	sf
Existing Gravel Driveway to be Removed	2,956	sf
Existing Sheds to be Removed	1,040	sf
Existing Sidewalk to be Removed	1,732	sf
Existing Storm Easement to be Removed	15,273	sf
Existing Structural Building to be Removed	7,725	sf
Remove Existing Catch Basin	4	Count
Tree Protection Fence	2,117.06	ft



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NC BOARD OF EXAMINERS FOR
ENGINEERS AND SURVEYORS
LIC # C-1209

NC BOARD OF
LANDSCAPE ARCHITECTS
LIC # C-104



Project
1700 HILLDALE ROAD
Durham County,
North Carolina

Owner:
Hilldale Partners LLC
1201 Edwards Mill Rd
Suite 300
Raleigh, NC 27607

PIN:
0812-08-98-2988, 0812-08-98-5003,
0812-08-98-1881, 0812-08-17-8525,
0812-08-98-1780, 0812-08-98-1674,
0812-08-98-1577, 0812-08-98-1571,
0812-08-98-5616, 0812-08-98-1464,
0812-08-98-1365, 0812-08-98-1256,
0812-08-98-4296

Job Number 1967
Drawn ED, MPM, KMB
Checked JSA, FBR
Date 04/28/2022
Revisions

FINAL DESIGN
NOT RELEASED FOR
CONSTRUCTION

Sheet Title
EXISTING CONDITIONS & DEMOLITION PLAN

Sheet Number
CD-1.0

1/CD-1.0
EXISTING CONDITIONS & DEMOLITION PLAN
SCALE: 1"=40'

Scale 1" = 40'

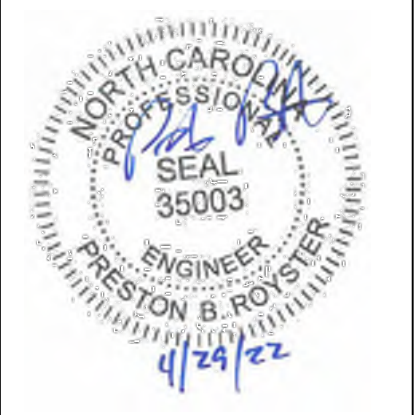


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NC BOARD OF EXAMINERS FOR ENGINEERS AND SURVEYORS LIC # C-1209
 NC BOARD OF LANDSCAPE ARCHITECTS LIC # C-104



Project
1700 HILLANDALE ROAD
 Durham County, North Carolina
 Owner:
 Hillandale Partners LLC
 1201 Edwards Mill Rd
 Suite 300
 Raleigh, NC 27607

PINS:
 0812-08-98-2988, 0812-08-98-5003,
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 0812-08-98-4296

Job Number 1967
 Drawn ED, MPM, KMB
 Checked USA, PBR
 Date 04/28/2022
 Revisions

FINAL DESIGN NOT RELEASED FOR CONSTRUCTION

Sheet Title
SITE PLAN

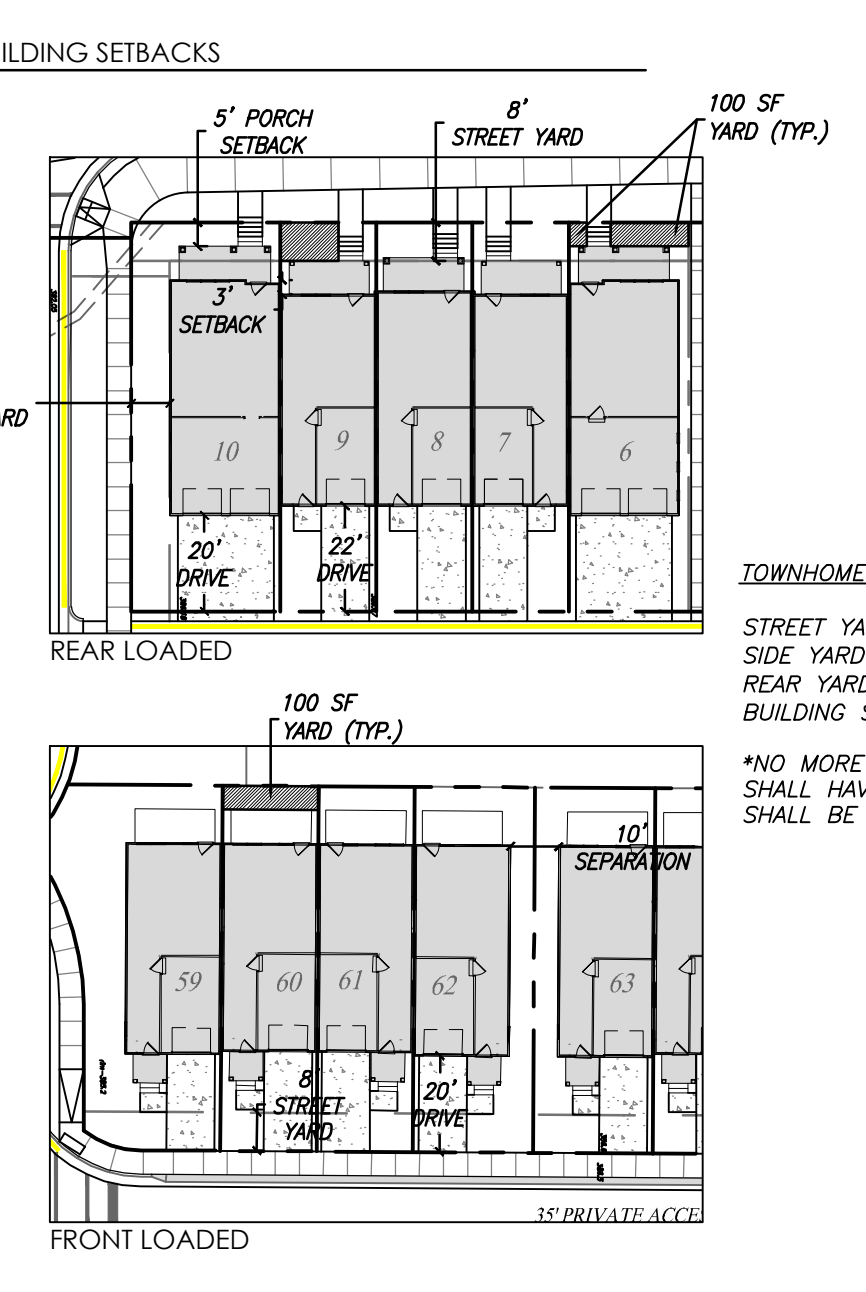
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CD-2.0

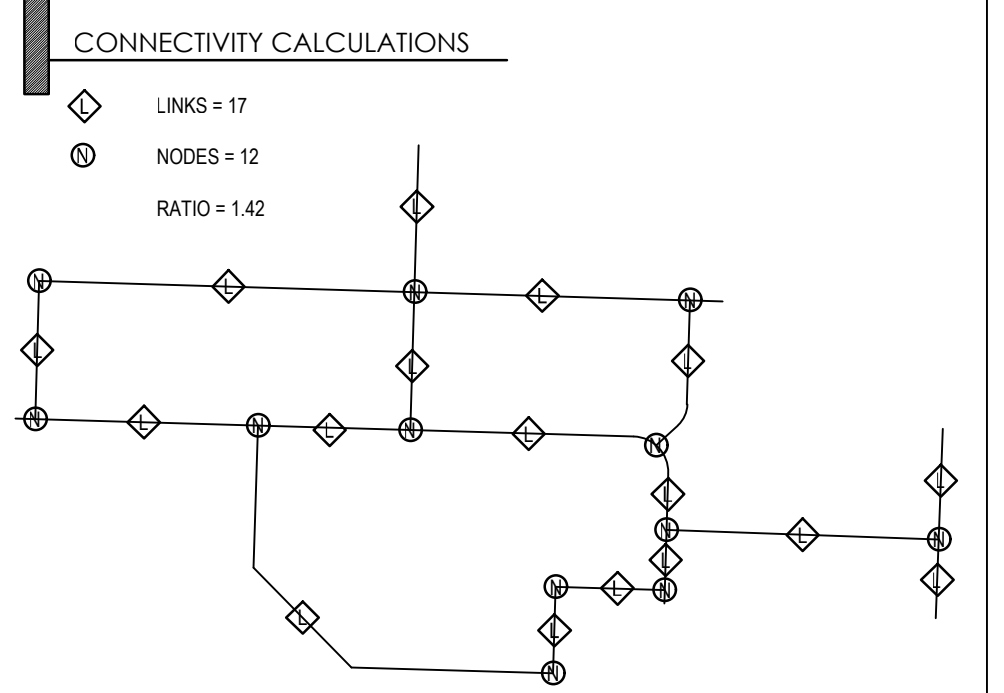
TREE PRESERVATION AREA
 COMMITTED:
 17% / 2.0 AC (Z1800032)
 PROPOSED:
 17% / 2.0 AC

OPEN SPACE CALCS.
 COMMITTED:
 17% / 2.0 AC (Z1800032)
 PROPOSED:
 1.34 AC PASSIVE (2/3 OF REQUIRED)
 0.67 AC ACTIVE (1/3 OF REQUIRED)
 • VOLLEY BALL COURTS 0.28 AC
 • ALL WEATHER TRAIL 0.22 AC
 • MULTI-USE FIELD .17 AC (25%)
 2.00 AC (100% OF REQUIRED)

Description	Quantity	Unit
(Dumpster) 1x6 Cementitious Siding Gate (6'-0" Wide x 7'-2" High) With 4"x1/4" Plate Wel Ends to Angle With 3"x3"x1/4" Angle Frame & 4 Heavy Duty Hinge	8	Count
(Dumpster) Lapped Cementitious Siding (8'-0" High) With 4x4 PT Post With Galvanized Post Base	93.78	ft
4" Aisle Pattern White Stripping	156.50	ft
4" White Stripping	364.56	ft
6" Dia Steel Post (12'-0" High)	4	Count
6" Steel Pipe Bollards Filled With Concrete (6'-0" High)	8	Count
8" Dumpster Pad (4000 PS)	1,185	sf
18" White Crosswalk	288.50	ft
24" Wide White Stop Bar	53.29	ft
30" Roll Curb & Gutter	463.77	ft
30" Standard Curb & Gutter	2,339.85	ft
48" Valley Gutter	230	sf
ADA Parking Sign	3	Count
All Weather Trail (Sec 7/CD-8.1)	10,158	sf
Asphalt Pavement	51,398	sf
Bike Rack	1	Count
Concrete Drive	24,114	sf
Concrete Steps (4'-0" Wide x 6" Riser x 12" Treads)	54	Count
Concrete Steps (5'-0" Wide x 6" Riser x 12" Treads)	158	Count
Concrete Wheel Stop	17	Count
Directional Arrow Road Sign	10	Count
Dumpster Can	4	Count
Fire Lane Stripping (Sec 6/SD-8.1)	2,365.82	ft
Handicap Road Symbol With Van Letter	3	Count
Leasing Office Parking Sign	2	Count
Mail Kiosk Box/CBU	5	Count
Segmental Retaining Wall (Design by Other) With 42" Minimum High non Climbable Fence	401.69	ft
Sidewalk	25,968	sf
Stop Sign	5	Count



TOWNHOME LOTS
 STREET YARD = MIN. 8'
 SIDE YARD = N/A (UDO SEC.6.11.3.E.2.a)
 REAR YARD = N/A (UDO SEC.6.11.3.E.2.a)
 BUILDING SEPARATION = MIN. 10' (UDO SEC.6.11.3.D.2.a)
 *NO MORE THAN FOUR CONTIGUOUS TOWNHOUSE UNITS SHALL HAVE THE SAME SETBACK. VARIATIONS IN SETBACK SHALL BE AT LEAST THREE FEET.



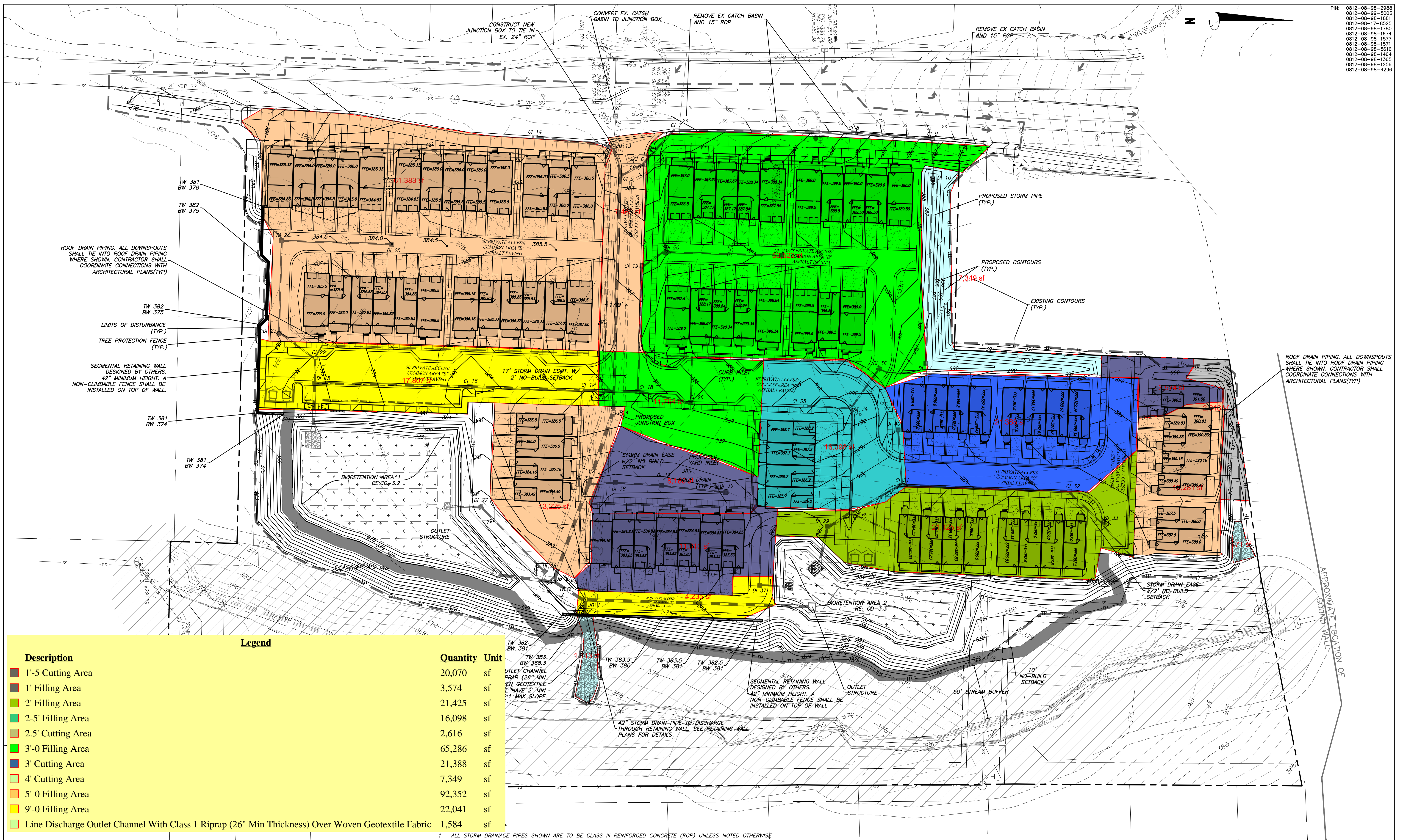
CONNECTIVITY CALCULATIONS
 LINKS = 17
 NODES = 12
 RATIO = 1.42

PIN: 0812-08-98-2988
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Description	Quantity	Unit
1'-5' Cutting Area	20,070	sf
1' Filling Area	3,574	sf
2' Filling Area	21,425	sf
2'-5' Filling Area	16,098	sf
2.5' Cutting Area	2,616	sf
3'-0' Filling Area	65,286	sf
3' Cutting Area	21,388	sf
4' Cutting Area	7,349	sf
5'-0' Filling Area	92,352	sf
9'-0' Filling Area	22,041	sf
Line Discharge Outlet Channel With Class 1 Riprap (26" Min Thickness) Over Woven Geotextile Fabric	1,584	sf

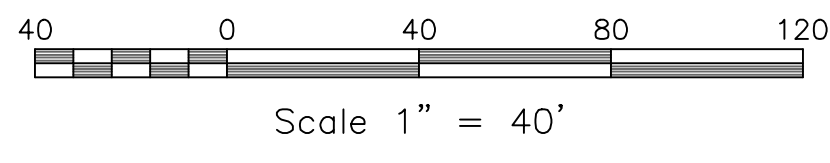
OPTIONAL BLANKET EASEMENT FOR MULTIFAMILY AND OTHER DEVELOPMENT (CANNOT BE USED FOR LIMITED RESIDENTIAL). THE CITY OF DURHAM AND THEIR ASSIGNS HAVE RIGHT OF ACCESS TO THE PERMANENT STORMWATER CONTROL MEASURE(S) (UNDERGROUND STORMFILTER) FOR INSPECTIONS AND MAINTENANCE ENFORCEMENT. A BLANKET ACCESS EASEMENT TO, OVER AND AROUND THE STORMWATER CONTROL MEASURE IS HEREBY GRANTED FOR INSPECTIONS AS WELL AS ENFORCEMENT OF OPERATION & MAINTENANCE. ANY OBSTRUCTION PLACED IN THE BLANKET EASEMENT THAT IMPEDES NECESSARY MAINTENANCE ENFORCEMENT WILL BE REMOVED AND ALL THE ASSOCIATED COSTS WILL BE BORNE SOLELY BY THE OWNER.

- ALL STORM DRAINAGE PIPES SHOWN ARE TO BE CLASS III REINFORCED CONCRETE (RCP) UNLESS NOTED OTHERWISE.
- ALL STORM DRAINAGE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF DURHAM STANDARDS.
- ALL CONCRETE SHALL MEET A MINIMUM 3000 PSI COMPRESSIVE STRENGTH.
- ALL PIPE IN STORM DRAIN STRUCTURES SHALL BE STRUCK EVEN WITH INSIDE WALL.
- ALL PIPE JOINTS SHALL BE MADE WITH PREFORMED JOINT SEALER, WHICH CONFORMS TO AASHTO SPECIFICATION M-198 FOR TYPE B FLEXIBLE PLASTIC GASKETS UNLESS OTHERWISE NOTED.
- THE INTERIOR SURFACES OF ALL STORM DRAINAGE STRUCTURES SHALL BE POINTED UP AND SMOOTHED TO AN ACCEPTABLE STANDARD USING MORTAR MIXED TO MANUFACTURER'S SPECIFICATIONS.
- ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATION MATTER, WASTE CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. SAID MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.
- MATERIALS DEEMED BY THE OWNER'S REPRESENTATIVE AS UNSUITABLE FOR BACKFILL PURPOSES SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
- BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE THOROUGHLY COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY OBTAINABLE WITH THE STANDARD PROCTOR TEST. THE TOP EIGHT (8) INCHES SHALL BE COMPACTED TO 100% STANDARD PROCTOR.
- UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED.
- SEE THE COVER SHEET FOR NOTES REGARDING IMPERVIOUS SURFACE.

NOTE: CONTRACTOR SHALL PROVIDE PLANS FOR ALL PROPOSED RETAINING WALLS FOR REVIEW AND APPROVAL BY ENGINEER AND OWNER. PLANS SHALL BE PREPARED, SIGNED, AND SEALED BY A QUALIFIED LICENSED PROFESSIONAL ENGINEER, CONTRACTOR OR WALL DESIGNER SHALL BE RESPONSIBLE FOR ANY AND ALL PERMITTING REQUIRED FOR THE PROPOSED RETAINING WALLS.

CITY OF DURHAM APPROVED

ENGINEERING _____ DATE _____
 STORM WATER _____ DATE _____
 TRANSPORTATION _____ DATE _____
 WATER MANAGEMENT _____ DATE _____
 FLOODPLAIN _____ DATE _____



1/CD-3.0
 GRADING & STORM DRAINAGE PLAN
 SCALE: 1"=40'

Project
 1700 HILLDALE ROAD
 Durham County, North Carolina
 Owner:
 Hilldale Partners LLC
 1201 Edwards Mill Rd
 Suite 300
 Raleigh, NC 27607

PINS:
 0812-08-98-2988, 0812-08-98-5003,
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Sheet Title
 GRADING & STORM DRAINAGE PLAN

Sheet Number
 CD-3.0

GRADING NOTES:

- ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY THE OWNER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO THE CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF DURHAM & NCDOT STANDARDS AND SPECIFICATIONS.
- CONTRACTOR SHALL NOTIFY "NORTH CAROLINA ONE CALL" (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR TO CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NORTH CAROLINA ONE CALL".
- PRIOR TO BEGINNING CONSTRUCTION, THE GENERAL CONTRACTOR SHALL SCHEDULE AND ATTEND A PRECONSTRUCTION CONFERENCE WITH THE CITY OF DURHAM INSPECTIONS DEPARTMENT (919) 860-4326 EXT. 30287, AND A REPRESENTATIVE OF THE OWNER.
- CONSTRUCTION, MAINTENANCE AND REMOVAL OF ALL EROSION CONTROL DEVICES ARE THE RESPONSIBILITY OF THE GRADING CONTRACTOR.
- EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON A FIELD SURVEY AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.
- SOIL UNDER BUILDING PAD, PAVED AREAS AND WITHIN SLOPES GREATER THAN 3:1 (H:V) SHALL BE APPROVED, PLACED AND COMPACTED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. THESE SOILS SHALL BE COMPACTED AS SPECIFIED UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER. ANY UNDERCUT OF SOILS IN THESE AREAS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER & OWNER. THE UNDERCUT SOILS SHALL ALSO BE QUANTIFIED BY THE GEOTECHNICAL ENGINEER.
- ALL BANKS, SWALES AND FILL SLOPES SHALL BE NO STEEPER THAN 2.5:1 MAXIMUM. CUT SLOPES SHALL BE NO STEEPER THAN 2:1.
- ALL GRADING MUST PRODUCE SURFACE DRAINAGE ADEQUATE TO PREVENT STANDING WATER OR WET LAWN AREAS, AND TO ENSURE THAT ALL STORM WATER FLOWS TO INLETS OR OTHER POINTS OF DISCHARGE.
- ALL SIDEWALKS SHALL BE CONSTRUCTED WITH A MAXIMUM 1.8% CROSS SLOPE IN THE DIRECTION SHOWN ON THE PLAN.
- CONNECT ALL DOWNSPOUTS TO ROOF LEADERS WHERE ROOF LEADERS ARE SHOWN WITH PVC PIPE. ALL ROOF LEADERS ARE TO CONNECT TO THE STORM DRAINAGE SYSTEM WITH PVC PIPE AS SHOWN. SEE ARCHITECTURAL PLANS FOR LOCATIONS OF DOWNSPOUTS.
- AT THE START OF GRADING INVOLVING THE LOWERING OF THE EXISTING GRADE AROUND A TREE OR STRIPPING OF TOPSOIL, A CLEAN, SHARP, VERTICAL CUT SHALL BE MADE AT THE EDGE OF THE TREE SAVE AREA AT THE SAME TIME AS OTHER EROSION CONTROL MEASURES ARE INSTALLED. TREE PROTECTION FENCING SHALL BE INSTALLED ON THE SIDE OF THIS CUT FARTHEST AWAY FROM THE TREE TRUNK.
- NO STORAGE OF MATERIALS, DUMPING OF WASTE MATERIALS, FILL, OR PARKING OF EQUIPMENT SHALL BE ALLOWED WITHIN THE ROOT PROTECTION ZONE, AND NO TRESPASSING SHALL BE ALLOWED WITHIN THE BOUNDARY OF THE ROOT PROTECTION ZONE.

STORM DRAINAGE NOTES:

- ALL STORM DRAINAGE PIPES SHOWN ARE TO BE CLASS III REINFORCED CONCRETE (RCP) UNLESS NOTED OTHERWISE.
- ALL STORM DRAINAGE CONSTRUCTION SHALL BE IN ACCORDANCE WITH NCDOT AND THE CITY OF DURHAM STANDARDS.
- ALL CONCRETE SHALL MEET A MINIMUM 3000 PSI COMPRESSIVE STRENGTH.
- ALL PIPE IN STORM DRAIN STRUCTURES SHALL BE STRUCK EVEN WITH INSIDE WALL.
- ALL PIPE JOINTS SHALL BE MADE WITH PREFORMED JOINT SEALER, WHICH CONFORMS TO AASHTO SPECIFICATION M-198 FOR TYPE B FLEXIBLE PLASTIC GASKETS UNLESS OTHERWISE NOTED.
- THE INTERIOR SURFACES OF ALL STORM DRAINAGE STRUCTURES SHALL BE POINTED UP AND SMOOTHED TO AN ACCEPTABLE STANDARD USING MORTAR MIXED TO MANUFACTURER'S SPECIFICATIONS.
- ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATION MATTER, WASTE CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. SAID MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.
- MATERIALS DEEMED BY THE OWNER'S REPRESENTATIVE AS UNSUITABLE FOR BACKFILL PURPOSES SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL.
- BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE THOROUGHLY COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY OBTAINABLE WITH THE STANDARD PROCTOR TEST. THE TOP EIGHT (8) INCHES SHALL BE COMPACTED TO 100% STANDARD PROCTOR.
- UNDER NO CIRCUMSTANCES SHALL WATER BE ALLOWED TO RISE IN UNBACKFILLED TRENCHES AFTER PIPE HAS BEEN PLACED.
- SEE THE COVER SHEET FOR NOTES REGARDING IMPERVIOUS SURFACE.
- WHERE ROOF LEADERS CROSS PROPERTY LINES, A BLANKET EASEMENT SHALL BE ESTABLISHED ON THE LOTS FOR MAINTENANCE BY THE HOA. THE EASEMENT SHALL BE INCLUDED IN THE HOA DOCUMENTS.

1/CD-3.1 GRADING AND STORM NOTES

DRAINAGE TABLE									
PIPE SEGMENT	UPSTREAM RIM	UPSTREAM BACK OF CURB	INVERT UPSTRM	INVERT DDWN.	LENGTH	DIA.	SLOPE	PIPE MATERIAL	O-RING/ GASKETTED
JB 1 TO OUTLET	382.54	-	368.57	358.41	16	42	1.00	RCP	YES
JB 2 TO JB 1	381.95	-	369.51	369.17	34	42	1.00	RCP	YES
JB 3 TO JB 2	383.80	-	370.95	370.01	94	36	1.00	RCP	YES
JB 4 TO DI 3	386.40	-	372.14	371.45	69	30	1.00	RCP	
CI 5 TO JB 4	382.25	382.75	374.40	372.24	216	30	1.00	RCP	
CI 4 TO CI 5	382.05	382.55	375.64	375.40	24	18	1.00	RCP	YES
CI 7 TO CI 6	382.60	383.10	377.11	376.69	42	18	1.00	RCP	
CI 8 TO CI 7	386.85	387.35	378.98	377.36	162	15	1.00	RCP	
CI 9 TO CI 8	390.00	390.50	379.79	379.08	71	15	1.00	RCP	
CI 10 TO CI 9	386.00	-	380.25	379.89	36	15	1.00	RCP	
CI 11 TO DI 10	385.10	-	382.05	380.35	158	15	1.01	RCP	
DI 3 TO DI 3	383.80	-	379.66	379.43	23	15	1.00	RCP	
DI 2 TO DI 38	383.80	-	380.07	379.66	41	15	1.00	RCP	
DI 9 TO DI 12	383.80	-	380.75	380.17	58	15	1.00	RCP	
DI 13 TO CI 5	382.50	-	376.39	374.50	27	30	7.00	RCP	
CI 4 TO JB 13	381.85	382.35	378.80	378.05	72	15	1.04	RCP	
DI 5 TO OUTLET	382.45	-	377.79	377.50	42	30	0.70	RCP	
DI 6 TO DI 15	383.42	383.92	379.26	378.29	139	24	0.70	RCP	
DI 17 TO CI 16	385.45	385.95	380.48	379.76	102	18	0.71	RCP	
DI 18 TO CI 17	386.45	386.95	380.94	380.58	51	18	0.71	RCP	
DI 19 TO CI 18	385.75	386.25	382.33	381.19	114	15	1.00	RCP	
DI 20 TO CI 19	386.15	-	383.05	382.80	24	15	1.04	RCP	
DI 4 TO DI 20	387.24	-	384.25	383.15	106	15	1.04	RCP	
CI 2 TO DI 15	382.95	383.45	379.03	378.80	23	18	1.00	RCP	
DI 1 TO CI 22	383.95	-	379.70	379.30	40	15	1.00	RCP	
DI 21 TO DI 23	384.00	-	380.65	379.80	85	15	1.00	RCP	
DI 5 TO DI 24	384.00	-	381.71	380.75	96	15	1.00	RCP	
CI 6 TO CI 18	387.43	387.93	382.10	381.55	49	15	1.12	RCP	
DI 7 TO OUTLET	381.70	-	377.80	377.50	27	15	1.11	RCP	YES
DI 8 TO DI 27	381.80	-	378.75	377.90	83	15	1.02	RCP	YES
DI 9 TO OUTLET	384.09	-	378.90	378.50	37	24	1.09	RCP	
CI 30 TO DI 29	383.85	384.35	379.25	379.00	25	24	1.00	RCP	
CI 31 TO CI 30	383.95	384.45	380.35	379.80	53	18	1.04	RCP	
CI 32 TO CI 31	386.45	386.95	382.00	380.45	152	15	1.02	RCP	
CI 33 TO CI 32	385.94	386.44	382.55	382.10	43	15	1.05	RCP	
DI 10 TO CI 31	385.20	-	381.08	380.60	48	15	1.00	RCP	
CI 34 TO CI 30	387.67	388.17	381.00	380.00	95	15	1.04	RCP	
CI 35 TO CI 34	387.40	387.90	381.55	381.10	42	15	1.07	RCP	
DI 15 TO CI 34	388.30	-	381.85	381.10	44	15	1.70	RCP	
DI 17 TO OUTLET	382.00	-	378.75	378.50	23	15	1.09	RCP	YES
BIO 1 TO JB 2	378.50	-	372.00	371.40	52	30	1.15	RCP	YES
BIO 2 TO JB 1	379.50	-	373.25	371.00	206	24	1.09	RCP	YES

2/CD-3.1 DRAINAGE CHART

Legend			
Description	Quantity	Unit	
✓ Curb Inlet	18	Count	
✓ Drain Inlet	18	Count	
✓ Junction Box	4	Count	

- EMBANKMENT CONSTRUCTION AND PIPE BACKFILL TO BE PERFORMED UNDER THE SUPERVISION OF A QUALIFIED GEOTECHNICAL ENGINEER, WHO IS REGISTERED AS A PROFESSIONAL ENGINEER IN THE STATE OF NORTH CAROLINA. THE GEOTECHNICAL ENGINEER MUST HAVE EXPERIENCE IN THE DESIGN AND CONSTRUCTION MONITORING OF DAMS OF THE SIZE AND SCOPE COVERED BY THESE STANDARDS AND GUIDELINES. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL REQUIRED INSPECTIONS WITH CIVIL AND GEOTECHNICAL ENGINEERS.
- THE GEOTECHNICAL ENGINEER, AS DEFINED ABOVE, SHALL OBSERVE ALL ASPECTS OF THE CONSTRUCTION OF THE DAM (I.E. PREPARATION OF THE FOUNDATION, INSTALLATION OF THE CUT-OFF TRENCH, INSTALLATION OF THE PRINCIPAL SPILLWAY PIPE, INSTALLATION OF THE INTERNAL DRAINAGE, INSTALLATION OF THE COMPACTED FILL, ETC.). THE FREQUENCY OF OBSERVATION AND TESTING MUST BE SUFFICIENT FOR THE GEOTECHNICAL ENGINEER TO STATE, IN HIS/HER PROFESSIONAL OPINION, THAT THE SPECIFIC ITEMS OBSERVED AND TESTED WERE INSTALLED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS AND SPECIFICATIONS.
- TESTS OF THE DEGREE (%) OF COMPACTION OF THE PLACED FILL IN THE DAM SHALL BE PERFORMED AS A PART OF THE PERMITEE'S NORMAL QUALITY CONTROL PROGRAM FOR THE CONSTRUCTION OF THE DAM. TESTS SHALL BE CONDUCTED CONCURRENT WITH THE INSTALLATION OF THE COMPACTED FILL AND THE CONTRACTOR SHALL COORDINATE THE CONSTRUCTION OF THE DAM SO THAT THE TESTING CAN BE COMPLETED. SHOULD THE RESULTS OF THE TESTS INDICATE THAT THE SPECIFIED DEGREE OF COMPACTION HAS NOT BEEN OBTAINED, THE PORTIONS OF THE DAM REPRESENTED BY SUCH TESTS SHALL BE REWORKED OR REBUILT. ALL PORTIONS OF THE DAM SHALL ACHIEVE THE SPECIFIED MINIMUM DEGREE OF COMPACTION. ALL VISIBLE ORGANIC DEBRIS SUCH AS ROOTS AND LIMBS SHALL BE REMOVED FROM THE FILL MATERIAL PRIOR TO COMPACTION TO THE REQUIRED DENSITY. SOILS WITH ORGANIC MATTER CONTENT EXCEEDING 5% BY WEIGHT SHALL NOT BE USED. STONES GREATER THAN 3-INCH (IN ANY DIRECTION) SHALL BE REMOVED FROM THE FILL PRIOR TO CONSTRUCTION.
- TREATMENT OF SEEPAGE AREAS, SUBGRADE PREPARATION, FOUNDATION DEWATERING, AND ROCK FOUNDATION PENETRATION (I.E. TREATMENT WITH SLUSH GROUTING, DENTAL CONCRETE, ETC.) MAY BE REQUIRED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER. ALL SUCH ACTIVITIES SHALL BE CLOSELY MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION.
- FOUNDATION AREAS MAY REQUIRE UNDERCUTTING OF COMPRESSIBLE AND/OR UNSUITABLE SOILS IN ADDITION TO THAT INDICATED ON THE PLANS. ALL SUCH UNDERCUTTING SHALL BE PERFORMED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER AND SHALL BE MONITORED AND DOCUMENTED BY THE GEOTECHNICAL ENGINEER DURING CONSTRUCTION. IN NO CASE SHALL THERE BE AN ATTEMPT TO STABILIZE ANY PORTIONS OF THE FOUNDATION SOILS WITH CRUSHED STONE.

3/CD-3.1 DAM TESTING, OBSERVATION AND CERTIFICATION SCALE: NTS

- ALL EARTHEN FILLS SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ALL VEGETATIVE MATERIAL, TOPSOIL AND ORGANIC MATTER PRIOR TO CONSTRUCTION. FULL CONSTRUCTION SPECIFICATIONS ARE REQUIRED IN ACCORDANCE WITH CHAPTER 21 OF THE CITY OF DURHAM OCTOBER 1, 2013 ADDENDA.
- ALL FILL SOILS FOR BERM SECTION SHALL BE CLEAN, IMPERMEABLE MATERIALS AND COMPACTED TO AT LEAST 98% STANDARD PROCTOR MAXIMUM DRY DENSITY, AT OPTIMUM MOISTURE CONTENT. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE GEOTECHNICAL ENGINEER. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).
- NO BLASTED MATERIALS SHALL BE USED IN THE EMBANKMENT CONSTRUCTION. SOILS SHALL NOT EXHIBIT SIGNIFICANT SHRINK/SWELL OR DISPERSIVE CHARACTERISTICS. ON-SITE GEOTECHNICAL ENGINEER SHALL APPROVE THE SOILS FOR PLACEMENT WITHIN THE BERM SECTION. THE GEOTECHNICAL ENGINEER SHALL ALSO SPECIFY THE METHODS TO BE USED FOR PLACEMENT OF FILL. IF ADDITIONAL USES ARE PLANNED UPON THE BERM SECTION (BUILDINGS, ETC.) THE GEOTECHNICAL ENGINEER SHALL SPECIFY SOILS SUITABLE FOR THAT ADDITIONAL USE.
- IF SUITABLE MATERIAL IS NOT AVAILABLE ON-SITE, SUITABLE MATERIAL IS TO BE BROUGHT TO THE SITE AT NO ADDITIONAL COST TO THE OWNER.
- CONTROLLED FILL, AS SPECIFIED BY THE GEOTECHNICAL ENGINEER, IN THE DAM EMBANKMENT FILL SHALL BE PLACED IN 6" LOOSE LAYERS (8" LOOSE LAYERS WITHIN 3' ON EITHER SIDE OF THE PRINCIPAL SPILLWAY PIPE TO A DEPTH OF 2' OVER THE PIPE) AND SHALL BE COMPACTED TO A DENSITY OF NO LESS THAN 95% OF THE STANDARD PROCTOR MAXIMUM DENSITY AT A MOISTURE CONTENT OF + OR - TWO PERCENTAGE POINTS OF THE OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D698.
- FILL MATERIALS PLACED AT DENSITIES LOWER THAN THE SPECIFIED MINIMUM DENSITIES OR AT MOISTURE CONTENTS OUTSIDE THE SPECIFIED RANGE OR OTHERWISE NOT CONFORMING TO THE SPECIFIED REQUIREMENTS SHALL BE REMOVED AND REWORKED OR REMOVED AND REPLACED WITH ACCEPTABLE MATERIALS AT NO ADDITIONAL EXPENSE TO THE OWNER.
- A KEY TRENCH IS TO BE PROVIDED IN ALL FILL AREAS AS DEEMED NECESSARY BY THE GEOTECHNICAL ENGINEER. TRENCH TO EXTEND A MINIMUM OF FIVE FEET BELOW EXISTING GRADE. SOILS AND COMPACTION FOR KEY TRENCH SHALL MEET ALL REQUIREMENTS OF #1 ABOVE.
- FILL ADJACENT TO THE RISER AND PRINCIPAL SPILLWAY PIPE SHALL BE PLACED SO THAT LIFTS ARE AT THE SAME LEVEL ON BOTH SIDES OF THE STRUCTURES.
- EARTHWORK COMPACTION WITHIN 3- FEET OF ANY STRUCTURES SHALL BE ACCOMPLISHED BY MEANS OF HAND TAMPERS, MANUALLY DIRECTED POWER TAMPERS OR PLATE COMPACTORS OR MINIATURE SELF-PROPELLED ROLLERS.
- HEAVY EQUIPMENT SHALL NOT BE ALLOWED TO PASS OVER CAST-IN-PLACE STRUCTURES UNTIL ADEQUATE CURING TIME HAS ELAPSED.
- ANY FILL LAYER THAT IS SMOOTH DRUM ROLLED TO REDUCE MOISTURE PENETRATION DURING A STORM EVENT SHALL BE PROPERLY SCARIFIED PRIOR TO THE PLACEMENT OF THE NEXT SOIL LIFT.
- SURFACE WATER AND STREAM FLOW SHALL BE CONTINUOUSLY CONTROLLED THROUGHOUT CONSTRUCTION AND THE PLACEMENT OF CONTROLLED FILL.
- THE BOTTOM OF THE POND AND THE EMBANKMENT SHALL HAVE AN INFILTRATION RATE OF LESS THAN 0.1 IN/HR. IF THE INFILTRATION RATE IS HIGHER, A NATURAL LINER (CLAY, MOST LIKELY) SHALL BE INSTALLED OVER THE ENTIRE POND FLOOR BELOW THE PERMANENT POOL.
- 85% OF DAM EMBANKMENT AND DAM FOUNDATION, GROIN, TOE, AND ABUTMENT AREAS MUST ACHIEVE A HEALTHY STAND OF GRASS, AND ALL AREAS THAT HAVE NOT ACHIEVED A HEALTHY STAND OF GRASS MUST BE SEEDED AND MULCHED PRIOR TO OBTAINING A CERTIFICATE OF OCCUPANCY. NO TREES OF ANY TYPE MAY BE LOCATED ON THE BERM SECTION.

4/CD-3.1 DAM EMBANKMENT CONSTRUCTION STANDARDS SCALE: NTS

- PRIOR TO CONSTRUCTION OF THE STORMWATER TREATMENT FACILITY, THE GENERAL CONTRACTOR SHALL SCHEDULE AND ATTEND A PRE-CONSTRUCTION CONFERENCE WITH A REPRESENTATIVE OF THE OWNER, THE CERTIFYING GEOTECHNICAL ENGINEER, AND ANY SUBCONTRACTOR USED IN THE CONSTRUCTION OF THAT FACILITY.
- ONCE SITE HAS BEEN STABILIZED AND THE STATE HAS APPROVED REMOVAL OF SEDIMENT BASIN, CONVERT POND FROM SEDIMENT BASIN TO WET POND. BASIN MUST BE CLEANED OUT, RE-GRADED, AND HAVE ESTABLISHED GROUND COVER PRIOR TO USE AS A WET POND.
- CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ALL PRECAST CONCRETE STRUCTURES, INCLUDING SEALED ENGINEERING DRAWINGS, FOR APPROVAL BY OWNER.
- SIDE SLOPES OF EMBANKMENT AND INSIDE OF DRY POND ARE TO BE 3:1 MAX., UNLESS OTHERWISE NOTED.
- PRINCIPAL SPILLWAY PIPES SHALL HAVE A MINIMUM PIPE STRENGTH CONFORMING TO AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM C-76), CLASS III STANDARDS. THE RUBBER GASKETTED JOINT PIPE SHALL ALSO BE WRAPPED WITH A LAYER OF GEOTEXTILE FILTER FABRIC ON THE OUTSIDE OF THE PIPE AT EACH JOINT. THE FABRIC SHALL MEET NCDOT SPECIFICATIONS FOR TYPE II FILTER FABRIC. SEE SECTION 1056 (TABLE 1056-1) IN THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S 2012 EDITION OF THE STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. THE FABRIC WRAP SHALL BE BETWEEN TWO AND THREE FEET WIDE, SHALL BE CENTERED OVER EACH PIPE JOINT, AND SHALL COVER A MINIMUM OF ONE-FOOT LENGTH OF EACH PIPE SEGMENT.
- CAST-IN-PLACE CONCRETE IS TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS AND CONFORM TO THE REQUIREMENTS OF ASTM C-94.

5/CD-3.1 POND NOTES SCALE: NTS

PIN: 0812-08-98-2988
0812-08-98-5003
0812-08-98-1881
0812-08-98-1780
0812-08-98-1674
0812-08-98-1577
0812-08-98-1571
0812-08-98-1464
0812-08-98-1365
0812-08-98-1259
0812-08-98-4296



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NC BOARD OF EXAMINERS FOR ENGINEERS AND SURVEYORS LIC # C-1209

NC BOARD OF LANDSCAPE ARCHITECTS LIC # C-104



Project
1700 HILLANDALE ROAD
Durham County,
North Carolina

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Suite 300
Raleigh, NC 27607

PINS:
0812-08-98-2988, 0812-08-98-5003,
0812-08-98-1881, 0812-08-17-8525
0812-08-98-1780, 0812-08-98-1674,
0812-08-98-1577, 0812-08-98-1571,
0812-08-98-1464, 0812-08-98-1259,
0812-08-98-1365, 0812-08-98-1256,
0812-08-98-4296

Job Number	1967
Drawn	ED, MPM, KMB
Checked	JSA, PBR
Date	04/28/2022
Revisions	

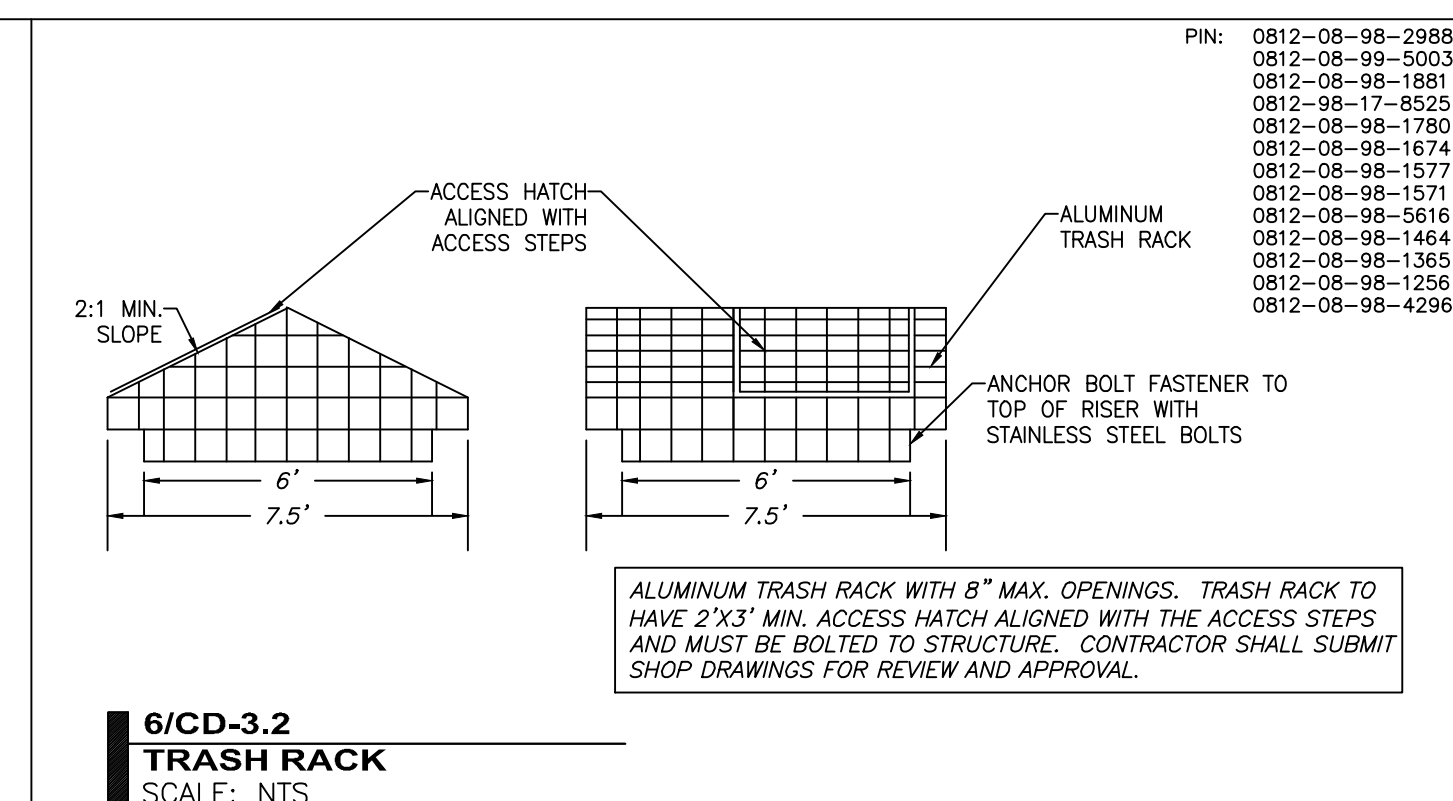
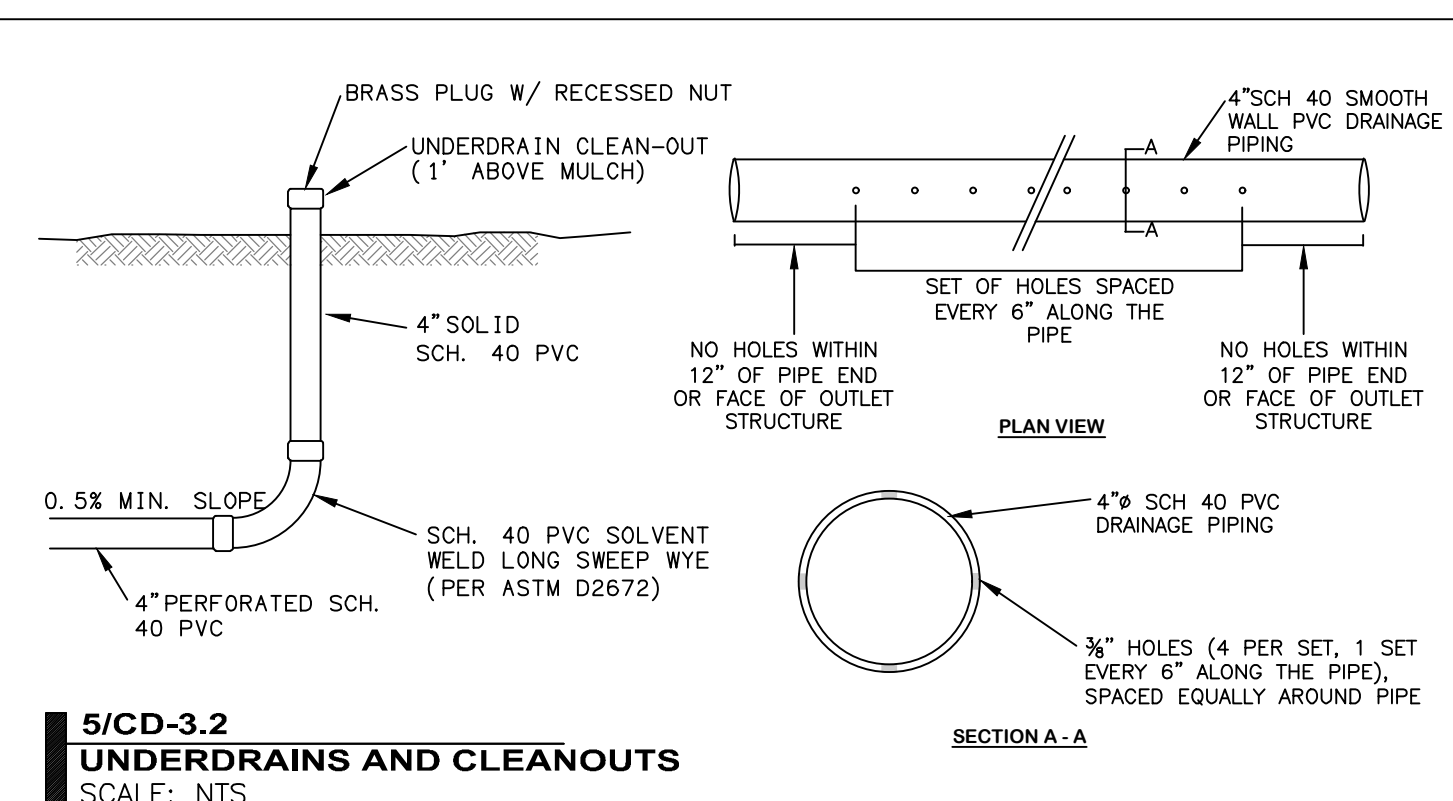
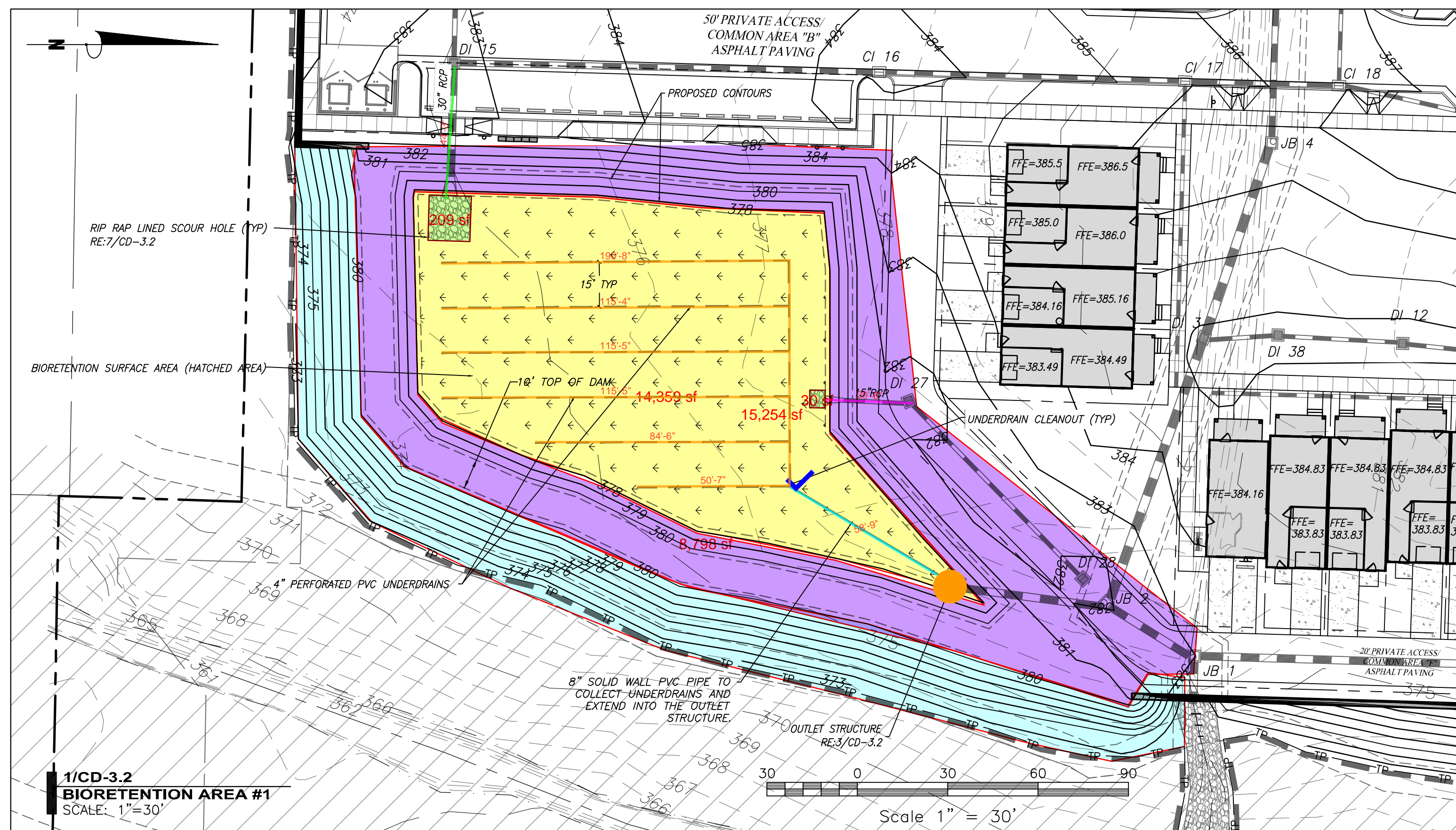
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Sheet Title
GRADING & STORM DRAINAGE NOTES

Sheet Number
CD-3.1

CITY OF DURHAM APPROVED

ENGINEERING _____ DATE _____
STORM WATER _____ DATE _____
TRANSPORTATION _____ DATE _____
WATER MANAGEMENT _____ DATE _____
FLOODPLAIN _____ DATE _____

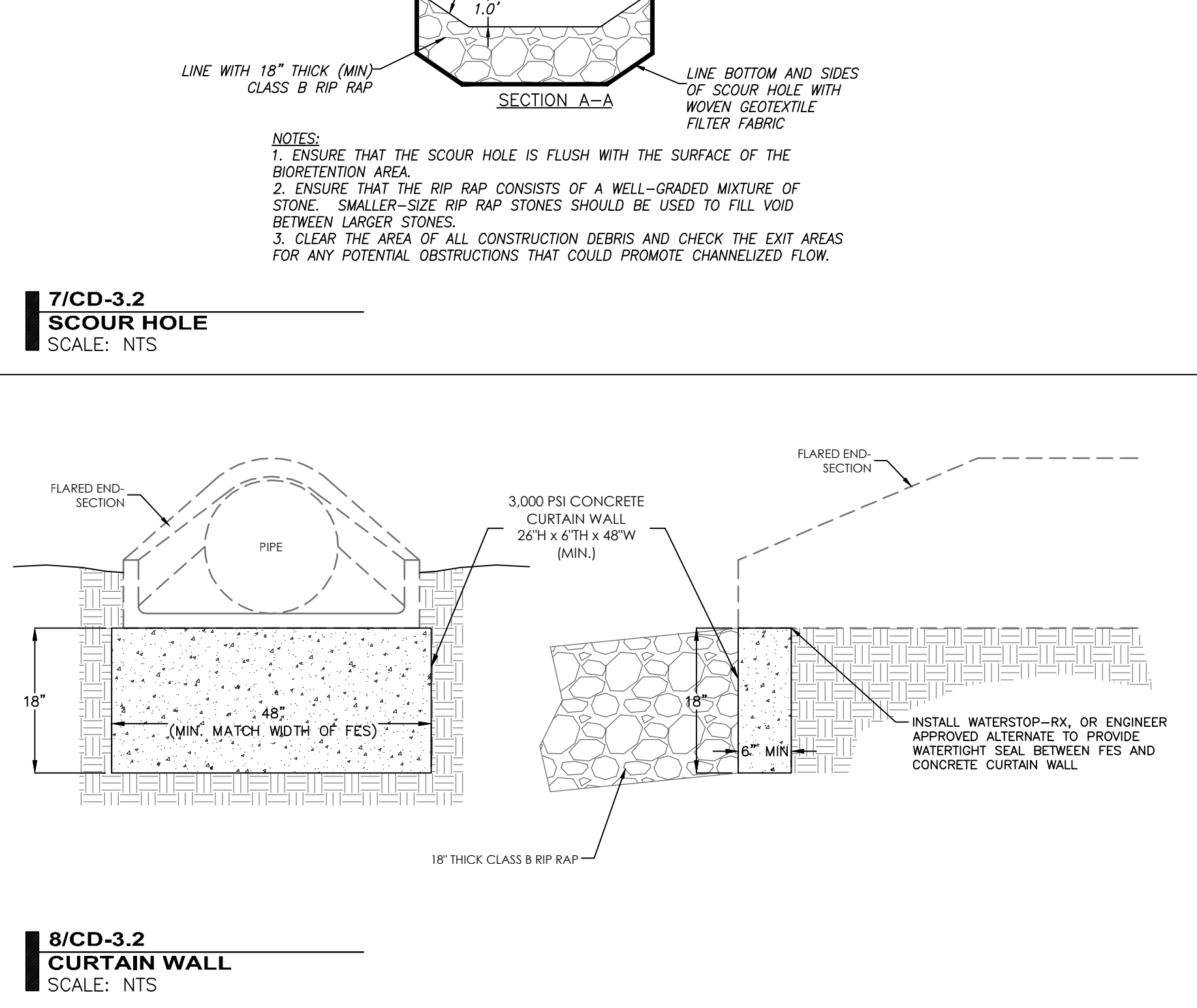
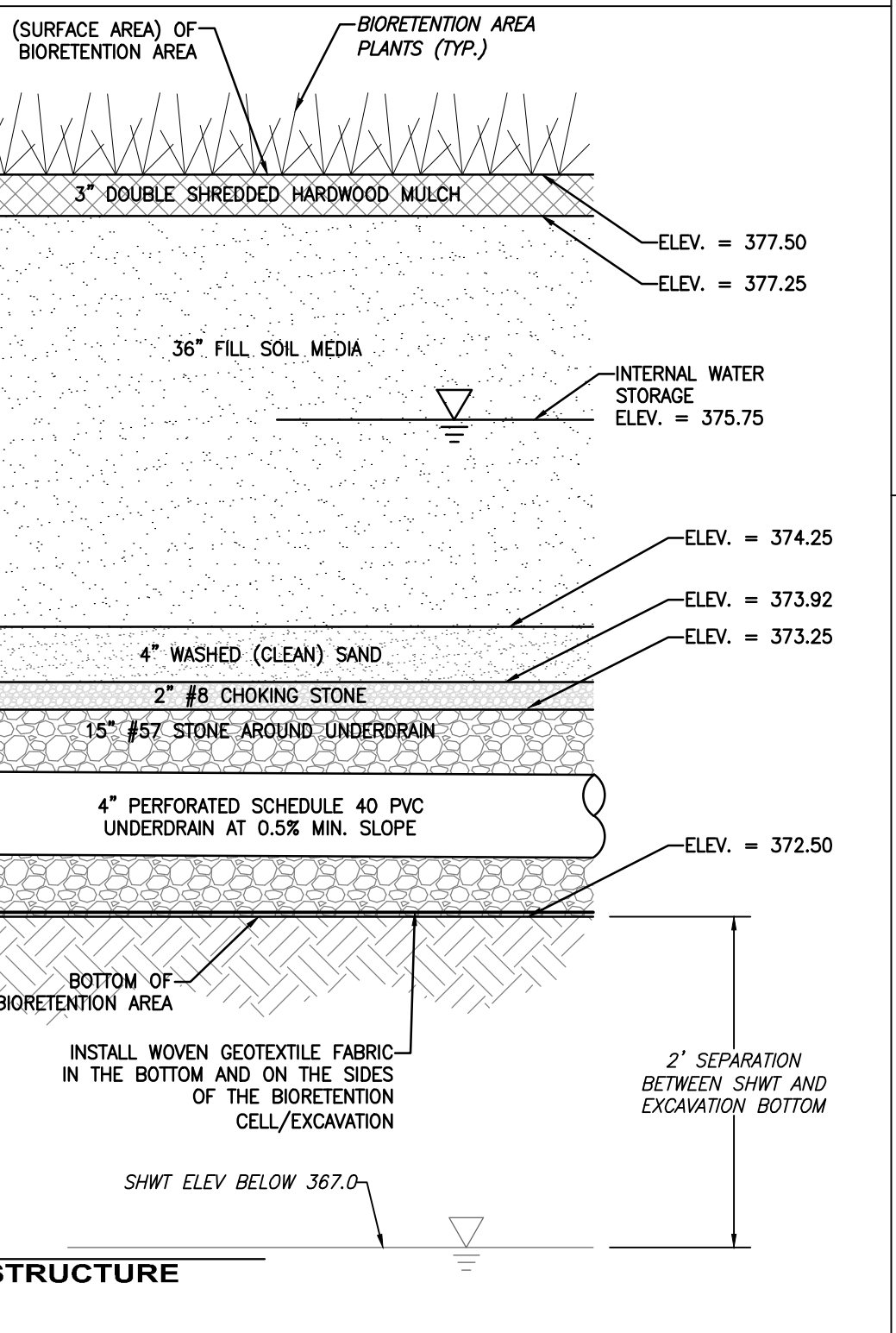
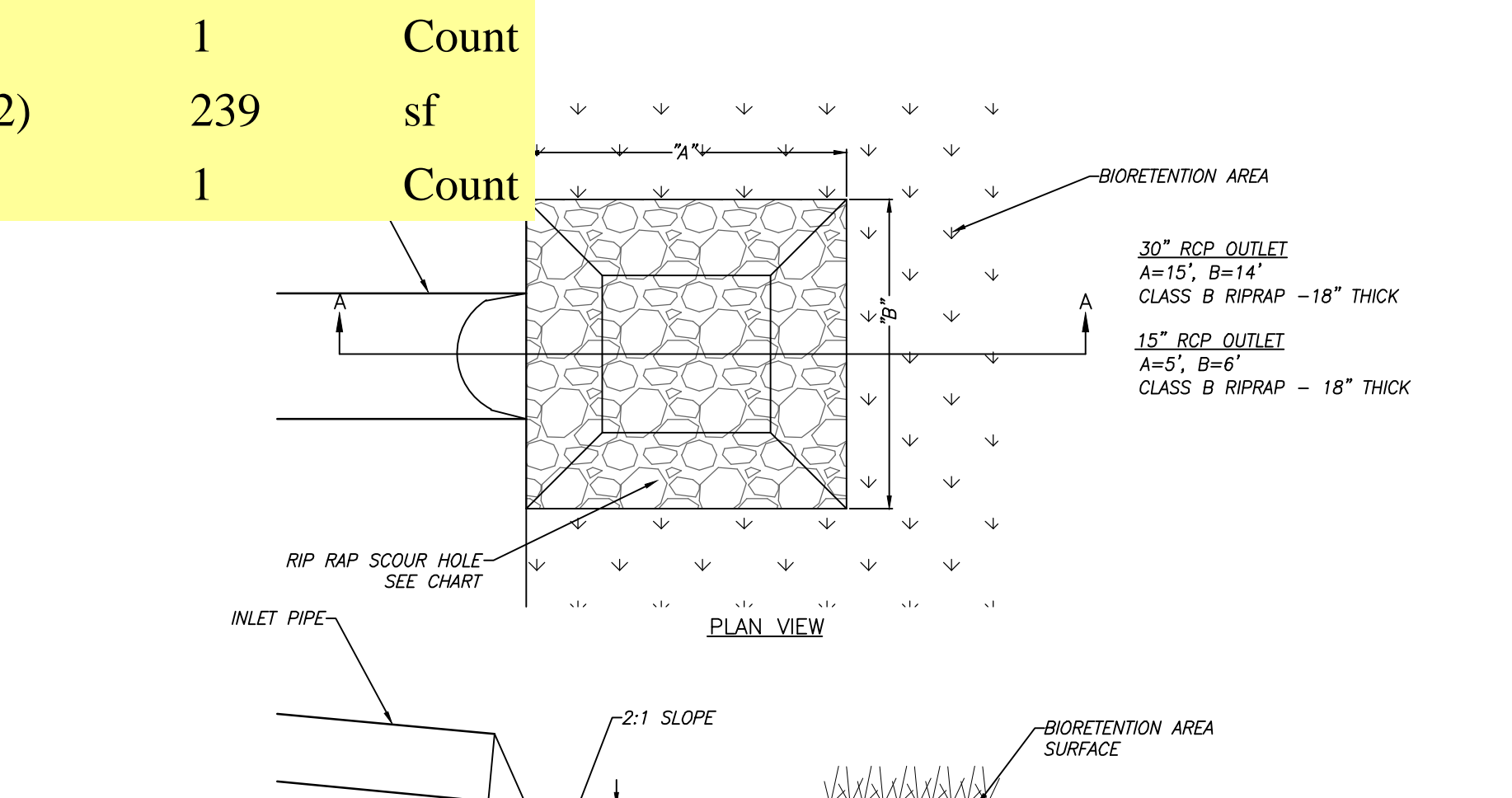
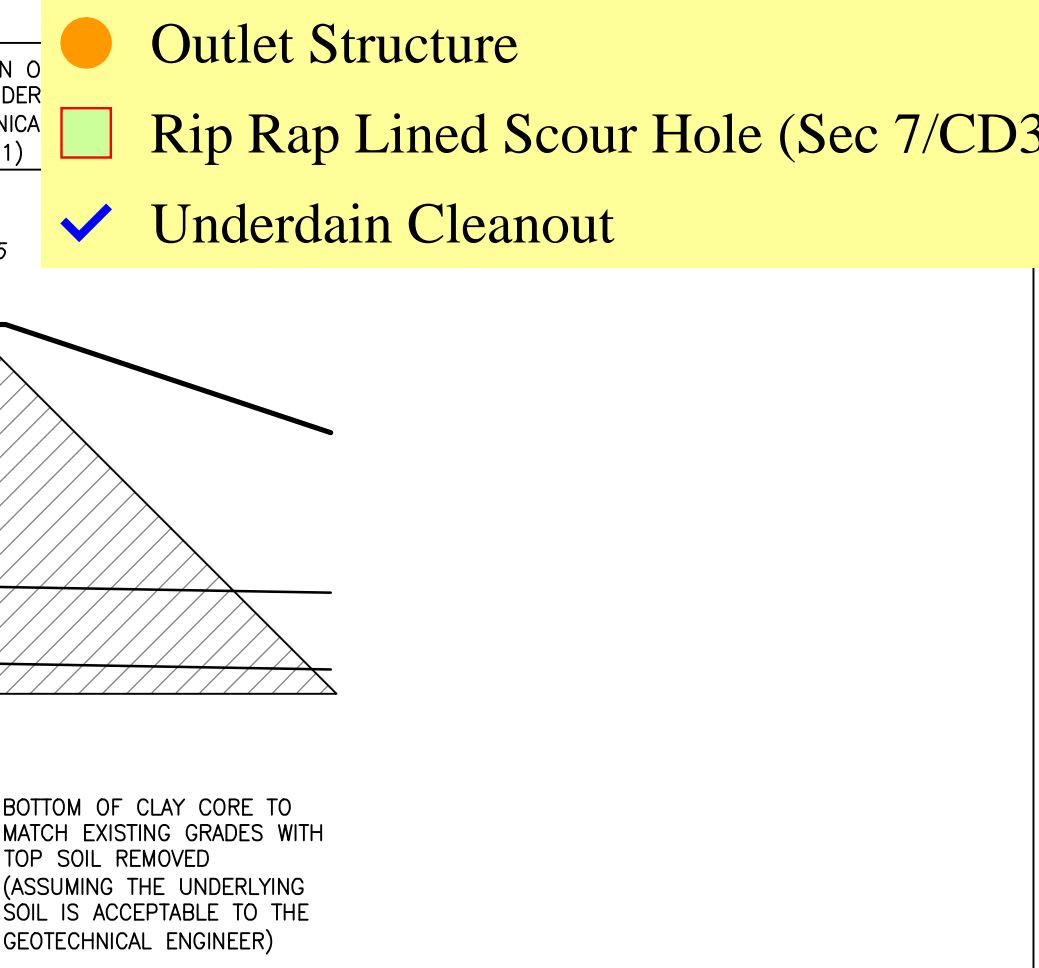
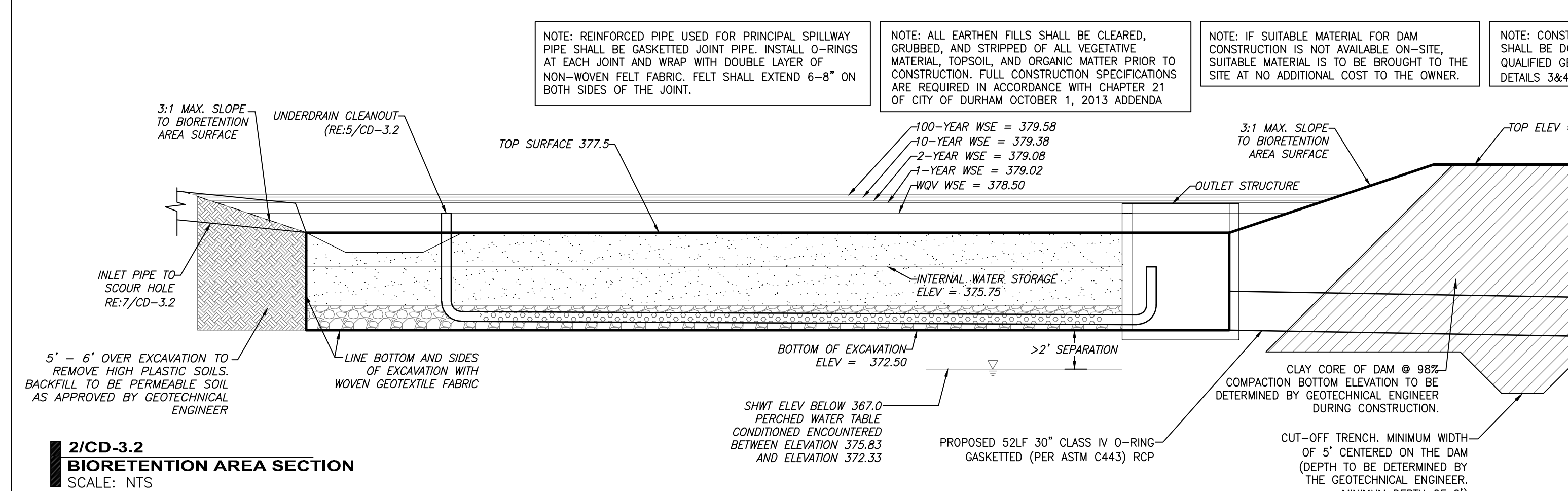


NOTES:
1. ALL SEDIMENT AND EROSION CONTROL PRACTICES SHALL BE IN PLACE AND THE SLOPES DRAINING TO THE BIO-RETENTION AREA SHALL BE STABILIZED BEFORE CONSTRUCTION OF THE BIO-RETENTION AREA BEGINS.
2. THE BIORETENTION SOIL MIX SHALL BE AT LEAST 36" DEEP AND SHALL BE A MIX OF 30% LOUISBURG BALLFIELD MIX WITH 70% ASTM C-33 SPECIFICATIONS:

Legend

Description	Quantity	Unit
2'-0 Filling Area	15,254	sf
4' Filling Area	8,798	sf
4" Perforated Pvc Underdrains Pipe	671.90	ft
5' Cutting With Bioretention Filling See Details	14,359	sf
8" Solid Wall Pvc Pipe	58.77	ft
15" RCP Pipe	29.47	ft
30" RCP Pipe	44.24	ft
Outlet Structure	1	Count
Rip Rap Lined Scour Hole (Sec 7/CD3.2)	239	sf
Underdain Cleanout	1	Count

NOTE: ALL SEDIMENT AND EROSION CONTROL PRACTICES SHALL BE IN PLACE AND THE SLOPES DRAINING TO THE BIO-RETENTION AREA SHALL BE STABILIZED BEFORE CONSTRUCTION OF THE BIO-RETENTION AREA BEGINS.
2. THE BIORETENTION SOIL MIX SHALL BE AT LEAST 36" DEEP AND SHALL BE A MIX OF 30% LOUISBURG BALLFIELD MIX WITH 70% ASTM C-33 SPECIFICATIONS:
3. THE MULCH, TOP OF PLANTING SOIL MEDIA, TOP OF THE SAND LAYER, TOP OF GRAVEL, CONTRACTOR SHALL PROVIDE SPACING OF UNDERDRAIN PIPING TO THE ENGINEER. IF THIS PIPING IS TO BE INSTALLED BY EXCAVATING DOWN TO EACH LAYER AND REPAIR BIORETENTION AREA AT OBTAINING C.O.
4. THE MULCH, TOP OF PLANTING SOIL MEDIA, TOP OF THE SAND LAYER, TOP OF GRAVEL, CONTRACTOR SHALL PROVIDE SPACING OF UNDERDRAIN PIPING TO THE ENGINEER. IF THIS PIPING IS TO BE INSTALLED BY EXCAVATING DOWN TO EACH LAYER AND REPAIR BIORETENTION AREA AT OBTAINING C.O.
5. ENSURE TESTING PAPERWORK, INCLUDING A MAP THAT LABELS WHERE THE DAM AND DAM GEOTECHNICAL ENGINEER.
6. TESTING ON THE SOIL MEDIA (1 TEST PER 1,000 SF OF SOIL MEDIA). THE INFILTRATION RATE RECEIPTS FOR ALL PIPE INSTALLED AS PART OF THE BIORETENTION AREA. THE ENGINEERING THE MANUFACTURE OF THE PIPE.



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NC BOARD OF LANDSCAPE ARCHITECTS LIC # C-104

ENGINEERING - PLANNING - LANDSCAPE ARCHITECTURE

Project
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PIN:
0812-08-98-2988, 0812-08-99-5003, 0812-08-98-1881, 0812-08-17-8525, 0812-08-98-1790, 0812-08-98-1674, 0812-08-98-1577, 0812-08-98-1571, 0812-08-98-1674, 0812-08-98-5616, 0812-08-98-1464, 0812-08-98-1365, 0812-08-98-1256, 0812-08-98-4296

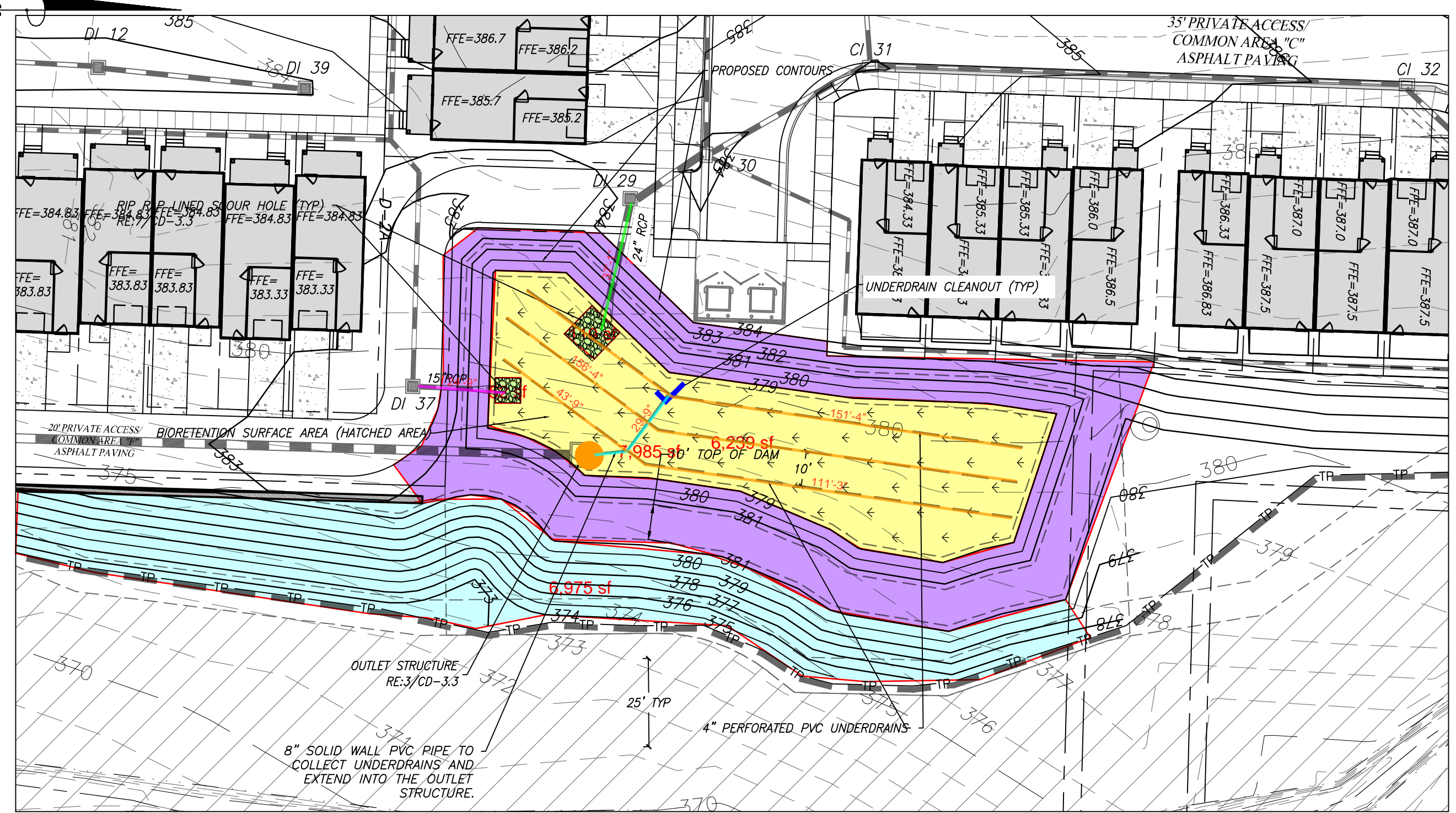
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Revisions

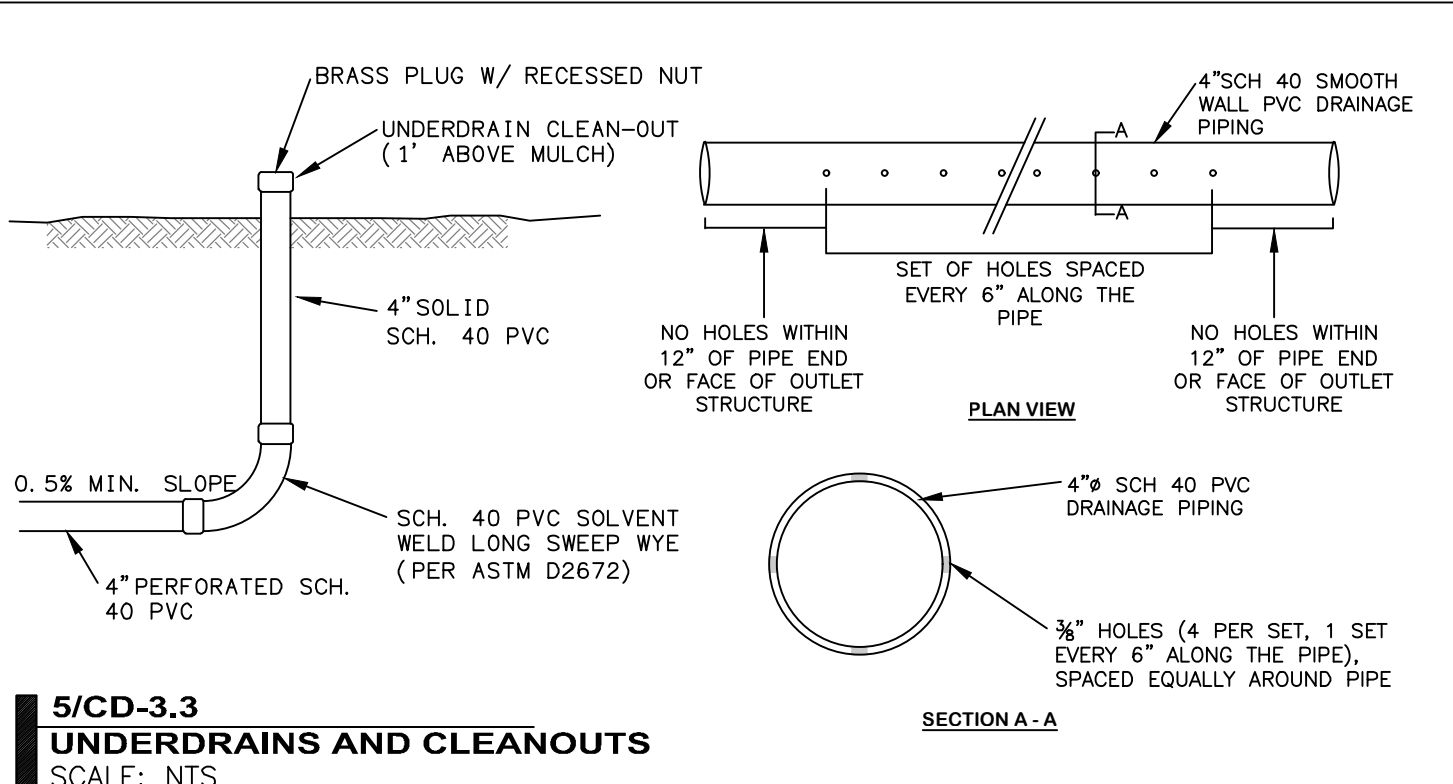
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Sheet Title
STORMWATER PLAN - BIORETENTION AREA #1

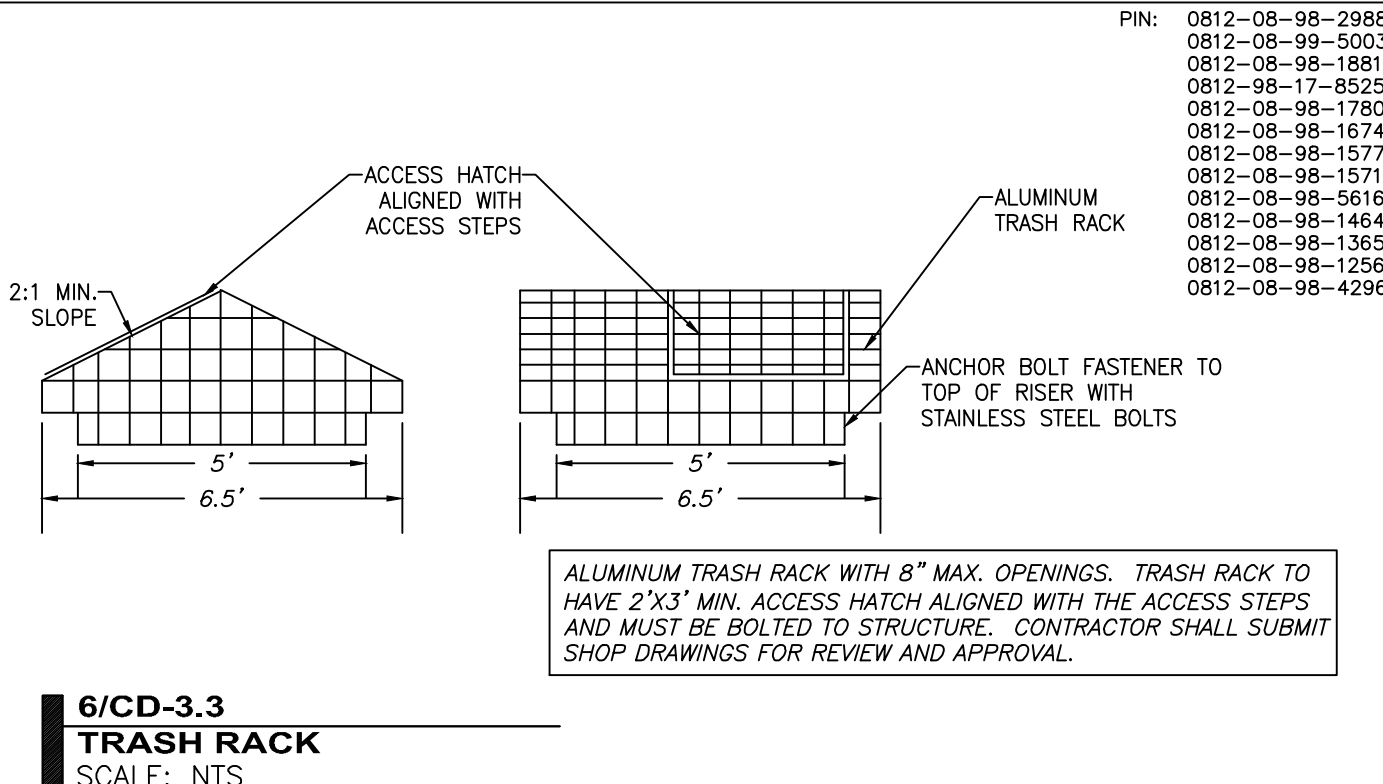
Sheet Number
CD-3.2



1/CD-3.3
BIORETENTION AREA #1
SCALE: 1"=30'



5/CD-3.3
UNDERDRAINS AND CLEANOUTS
SCALE: NTS

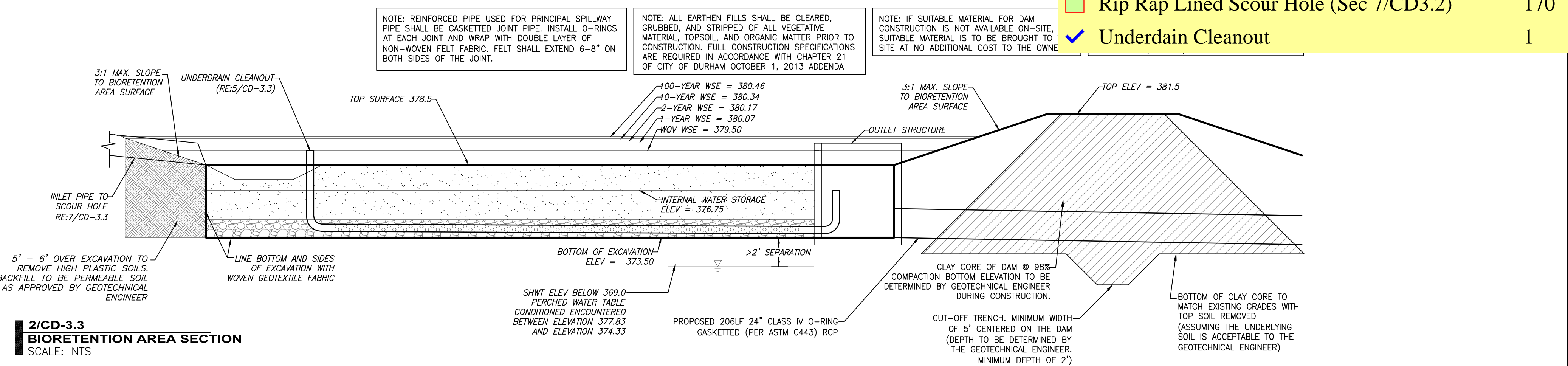


6/CD-3.3
TRASH RACK
SCALE: NTS

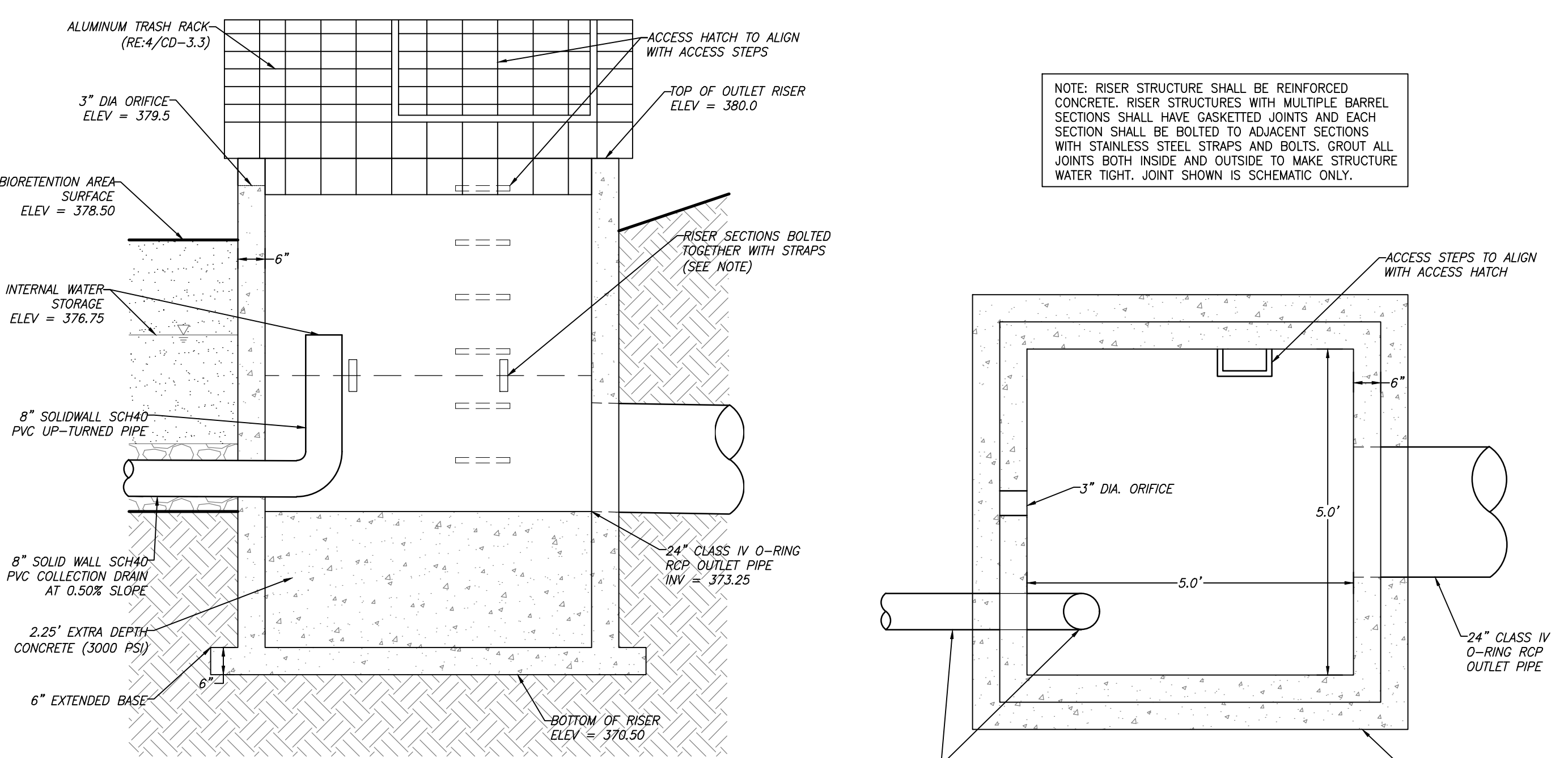
Description	Quantity	Unit
2'-0 Filling Area	7,985	sf
4' Filling Area	6,975	sf
4" Perforated Pvc Underdrains Pipe	462.55	ft
5' Cutting With Bioretention Filling See Details	6,239	sf
8" Solid Wall Pvc Pipe	29.74	ft
15" RCP Pipe	24.77	ft
24" RCP Pipe	37.12	ft
Outlet Structure	1	Count
Rip Rap Lined Scour Hole (Sec 7/CD3.2)	170	sf
Underdrain Cleanout	1	Count

Legend

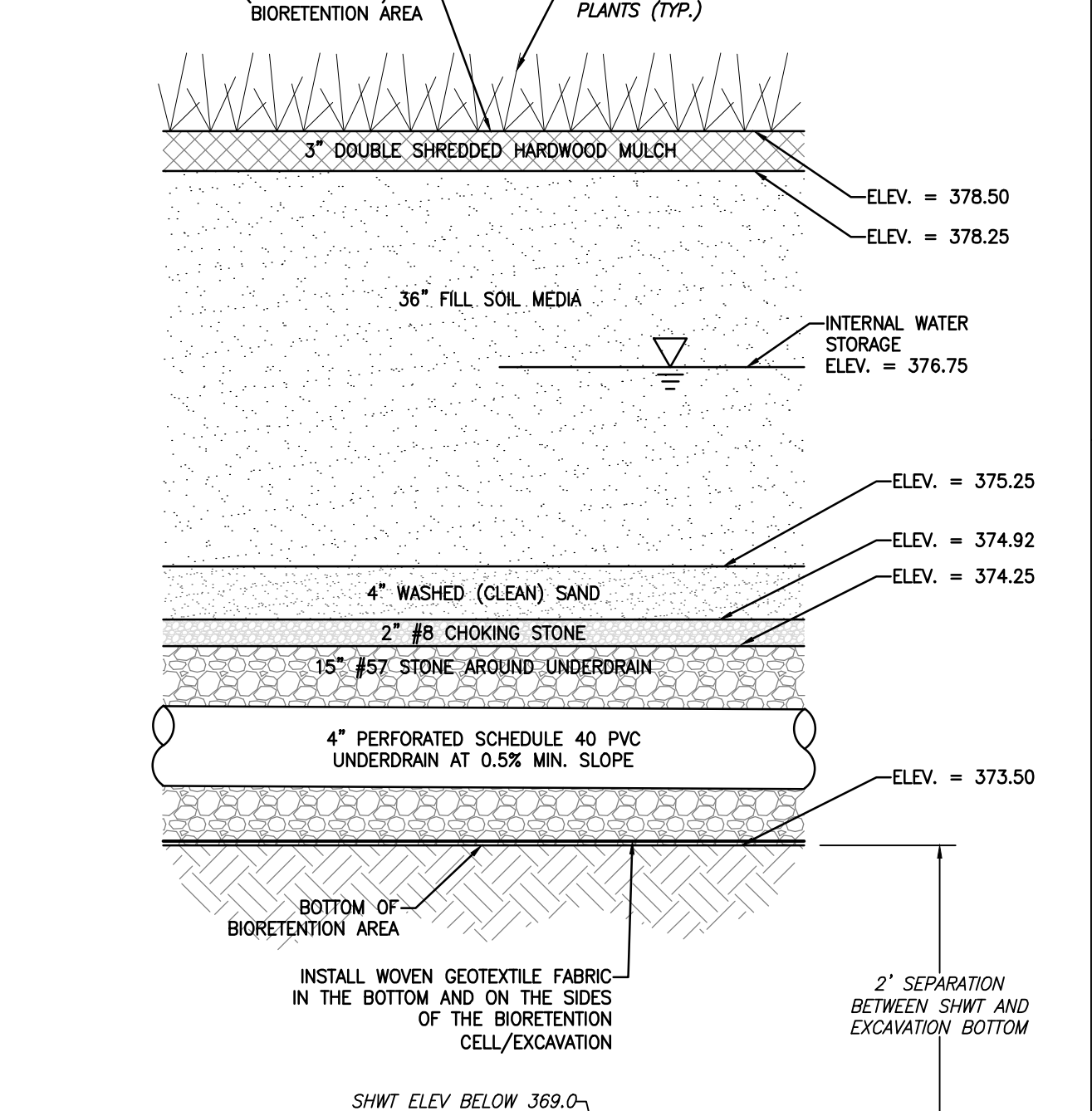
EROSION CONTROL PRACTICES SHALL BE IN PLACE AND THE SLOPES DRAINING TO THE BIO-RETENTION AREA SHALL BE CONSTRUCTION OF THE BIO-RETENTION AREA BEGINS.
 SOIL MIX SHALL BE AT LEAST 36" DEEP AND SHALL BE A MIX OF 30% LOUISBURG BALLFIELD MIX WITH 70% ASTM C-33 A MIX THAT MEETS THE FOLLOWING SPECIFICATIONS:
 (BY WEIGHT) ASTM C-33 SAND
 NES (INCLUDES BOTH SILTS AND CLAYS)
 SANIC/PEAT MOSS (NOTE: THE ORGANIC MATERIAL SHALL BE WELL MIXED OR LAYERED IN THE UPPER 18" OF THE SOIL MIX.)
 C CONDUCTIVITY RANGE OF THE SOIL MIX SHALL BE BETWEEN 1.0-6.0 INCHES/HOUR. THE MEDIA SHOULD BE TESTED TO BE ACTUAL DRAINAGE RATE AFTER PLACEMENT
 SHALL HAVE A P-INDEX RANGE BETWEEN 10 AND 25
 SHOULD BE SENT TO NO DEPARTMENT OF AGRICULTURE LABS TO BE ANALYZED
 ALLED MUST NOT BE GROWN IN SOIL THAT HAS AN IMPERMEABLE LAYER, SUCH AS CLAY.
 DIA SHALL BE FREE OF STONES, STUMPS, ROOTS, OR SIMILAR OBJECTS LARGER THAN 1". SOIL SHALL BE PLACED IN LAYERS
 VING TO THE BIORETENTION AREA SHALL BE STABILIZED PRIOR TO INSTALLATION OF THE UNDERDRAIN SYSTEM.
 EROSION CONTROL PRACTICES SHALL BE IN PLACE AND THE SLOPES DRAINING TO THE BIORETENTION AREA SHALL BE CONSTRUCTION OF THE BIORETENTION AREA BEGINS.
 PROVIDE ELEVATIONS AT THE TOP OF THE MULCH, TOP OF PLANTING SOIL MEDIA, TOP OF THE SAND LAYER, TOP OF GRAVEL, RETENTION AREA TO THE ENGINEER. CONTRACTOR SHALL PROVIDE SPACING OF UNDERDRAIN PIPING TO THE ENGINEER. IF THIS PROVIDED, CONTRACTOR SHALL VERIFY ELEVATIONS BY EXCAVATING DOWN TO EACH LAYER AND REPAIR BIORETENTION AREA AT TO THE OWNER.
 MATERIAL AND COMPOSITION AND DENSITY TESTING PAPERWORK, INCLUDING A MAP THAT LABELS WHERE THE DAM AND DAM ESTED, SHALL BE PROVIDED BY THE GEOTECHNICAL ENGINEER.
 CONDUCT IN-PLACE INFILTRATION TESTING ON THE SOIL MEDIA (1 TEST PER 1,000 SF OF SOIL MEDIA). THE INFILTRATION EEN 1-8 IN/HR.
 ALL PROVIDE A COPY OF THE PURCHASE RECEIPTS FOR ALL PIPE INSTALLED AS PART OF THE BIORETENTION AREA. THE ENTIFY THE ASTM SPECIFICATION GOVERNING THE MANUFACTURE OF THE PIPE.



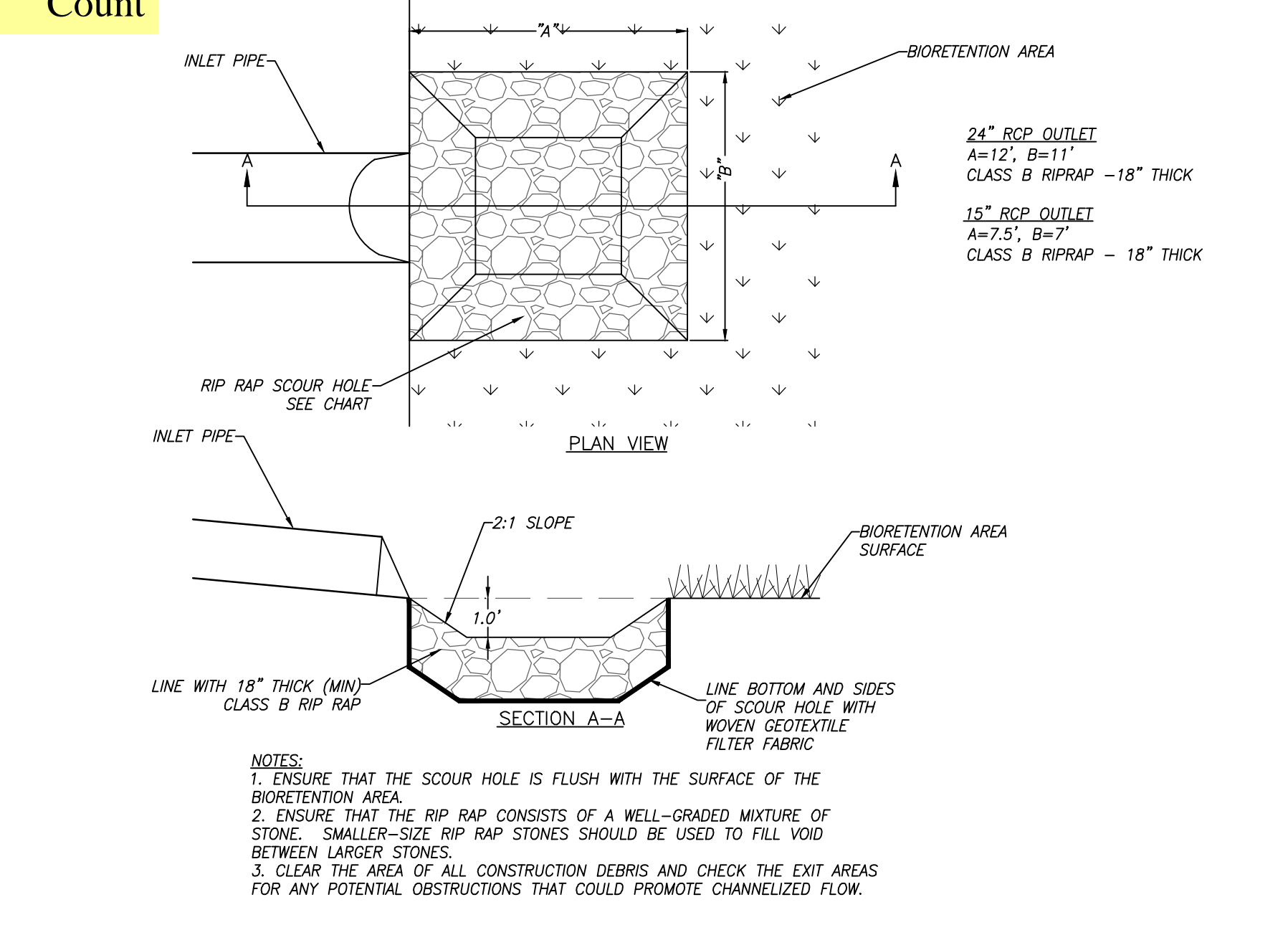
2/CD-3.3
BIORETENTION AREA SECTION
SCALE: NTS



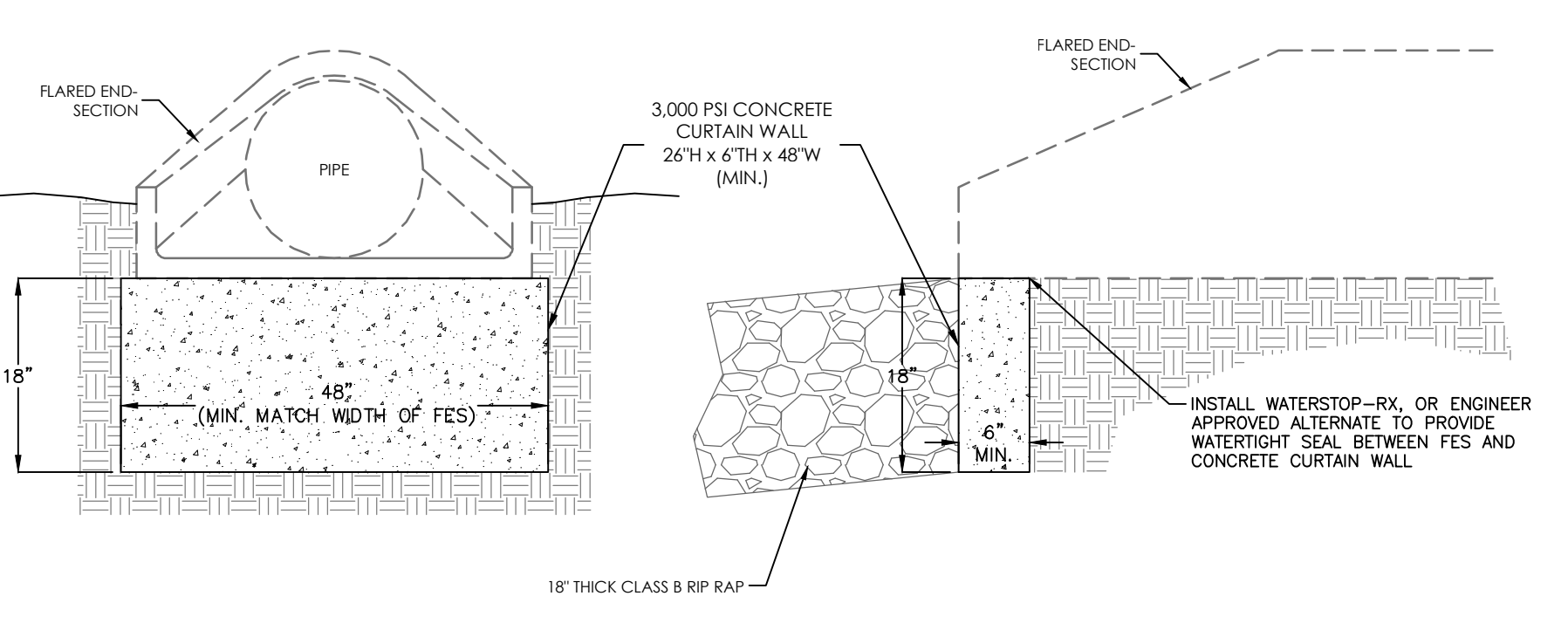
3/SD-3.3
OUTLET STRUCTURE
SCALE: NTS



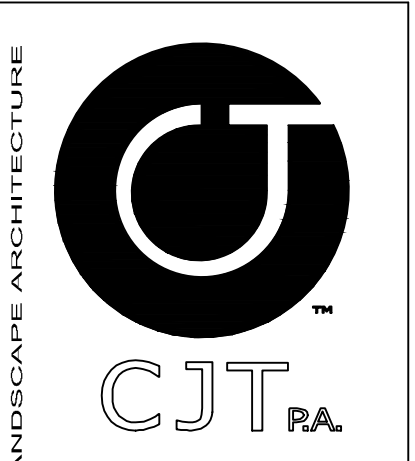
4/SD-3.3
OUTLET STRUCTURE
SCALE: NTS



7/SD-3.3
SCOUR HOLE
SCALE: NTS



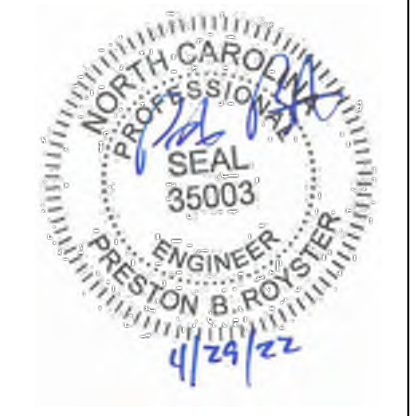
8/SD-3.3
CURTAIN WALL
SCALE: NTS



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NC BOARD OF LANDSCAPE ARCHITECTS LIC # C-104



Project
1700 HILLDALE ROAD
Durham County, North Carolina
Owner: Hillendale Partners LLC
1201 Edwards Mill Rd Suite 300
Raleigh, NC 27607

PINS:
0812-08-98-2988, 0812-08-99-5003, 0812-08-98-1881, 0812-08-17-8525, 0812-08-98-1780, 0812-08-98-1674, 0812-08-98-1577, 0812-08-98-1571, 0812-08-98-5616, 0812-08-98-1464, 0812-08-98-1365, 0812-08-98-1256, 0812-08-98-4296

Job Number 1967
Drawn ED, MPM, KMB
Checked JSA, PBR
Date 04/28/2022
Revisions

FINAL DESIGN NOT RELEASED FOR CONSTRUCTION

Sheet Title
STORMWATER PLAN - BIORETENTION AREA #1

Sheet Number

CD-3.3

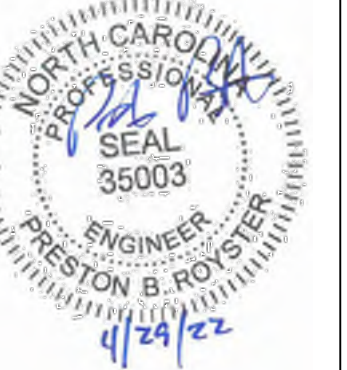
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 0812-98-15-7122
 0812-98-56-0544
 0812-98-14-6491
 0812-98-13-6475
 0812-98-12-6544
 0812-98-52-0723
 0821-98-29-8835



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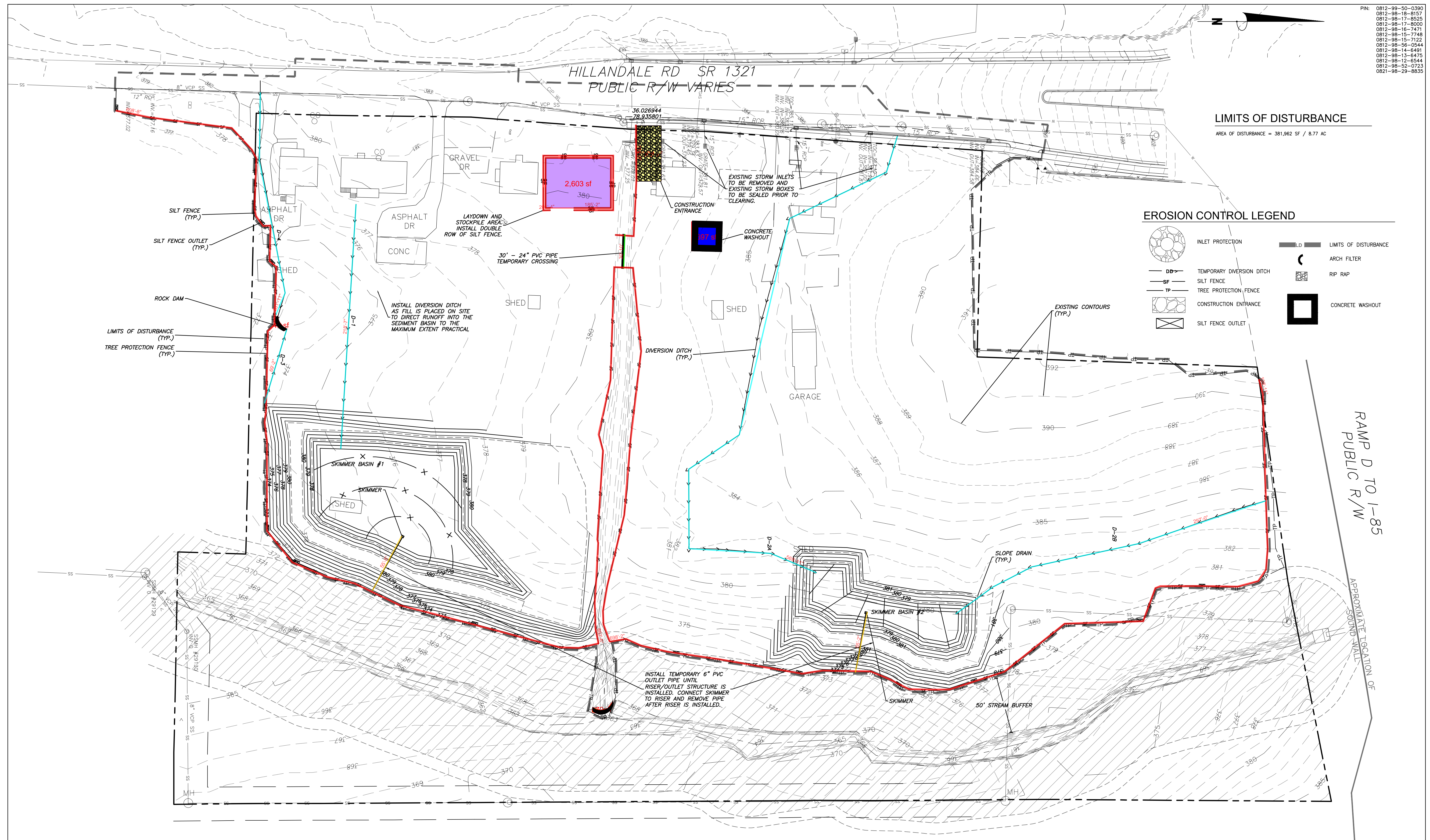
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 0812-98-52-0723

Job Number 1967
 Drawn CWA
 Checked PBR
 Date 04.25.2022
 Revisions

EROSION CONTROL
 NOT FOR CONSTRUCTION

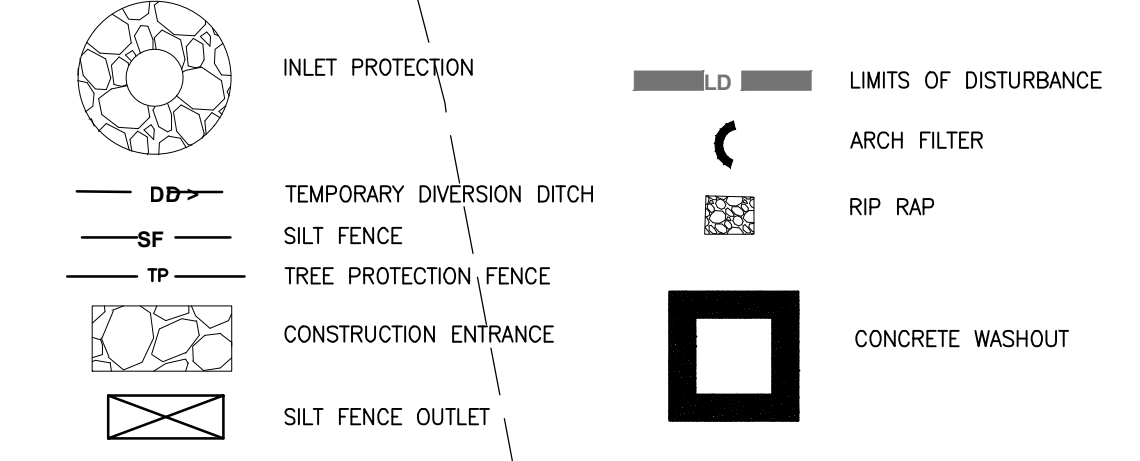
Sheet Title
EROSION CONTROL - PHASE 1

Sheet Number
CD-4.0



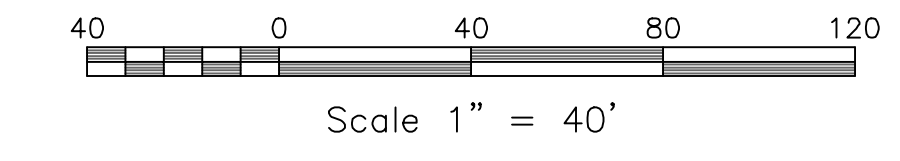
LIMITS OF DISTURBANCE
 AREA OF DISTURBANCE = 381,962 SF / 8.77 AC

EROSION CONTROL LEGEND



Legend			
Description	Quantity	Unit	
Arch Filter Rock Dam	115	sf	
Concrete Washout Area	697	sf	
Construction Entrance Area	1,068	sf	
Install Temporary 6" Pvc Outlet Pipe Until Riser / Outlet Structure is Installed.	110.56	ft	
Laydown And Stockpile Area	2,603	sf	
Silt Fence	2,810.75	ft	
Temporary Crossing of 24" PVC Pipe	30.82	ft	
Temporary Diversion Ditch	1,356.67	ft	

1/CD-4.0
GRADING & STORM DRAINAGE PLAN
 SCALE: 1"=40'



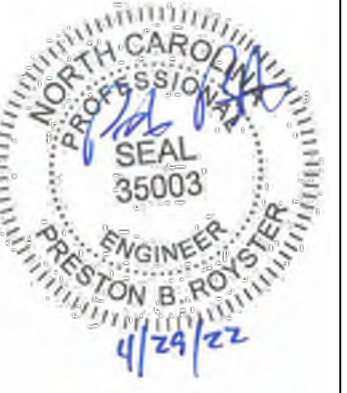
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 0812-98-02-6491
 0812-98-01-6491



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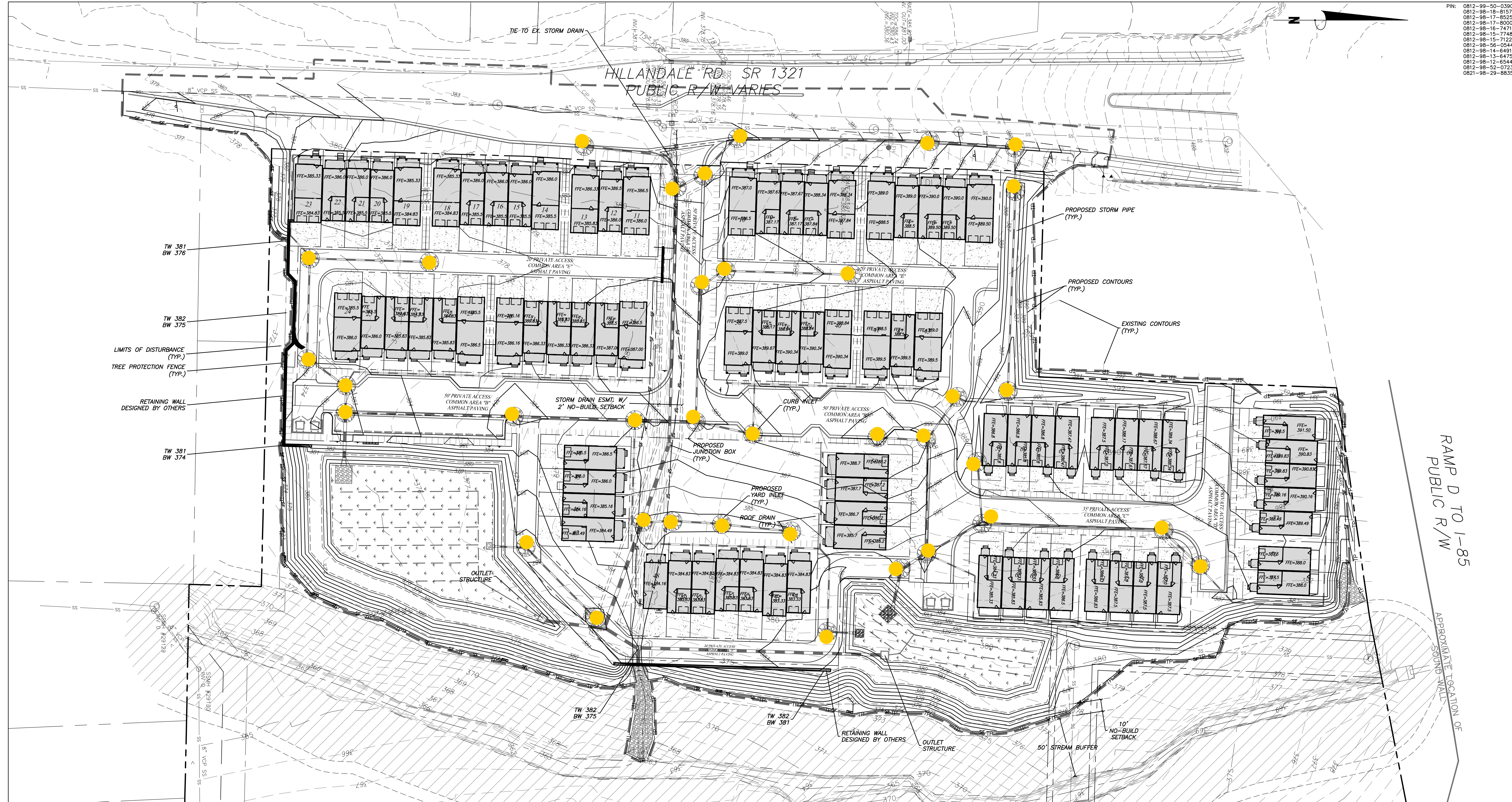
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Job Number 1967
 Drawn CWA
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 Date 04.25.2022
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EROSION CONTROL
 NOT FOR CONSTRUCTION

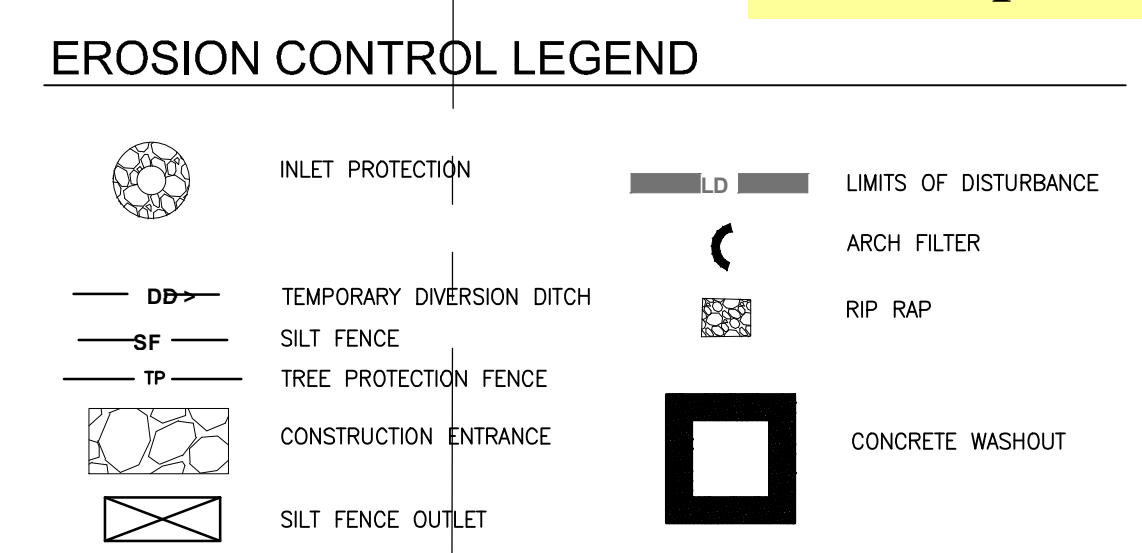
Sheet Title
EROSION CONTROL - PHASE 2

Sheet Number
CD-4.1



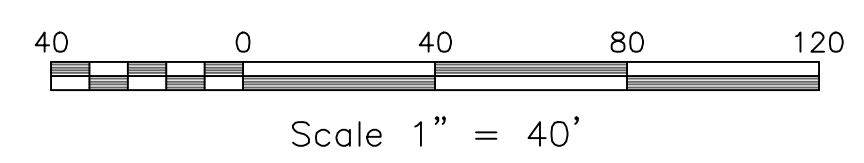
Description	Quantity	Unit
Proposed Inlet Protection Barrier	36	Count

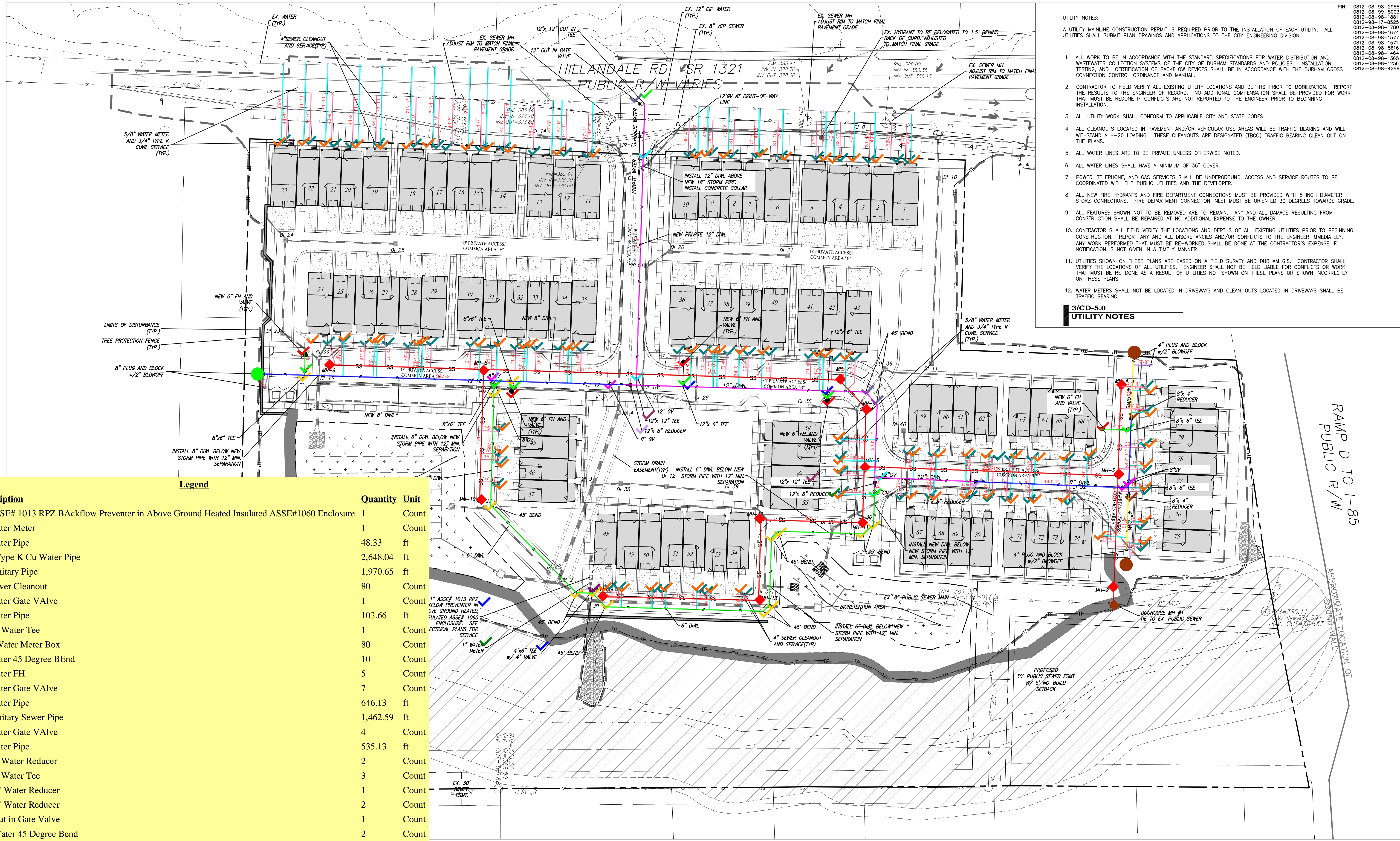
LIMITS OF DISTURBANCE
 AREA OF DISTURBANCE = 285,409 SF / 8.85 AC



1/CD-4.1
GRADING & STORM DRAINAGE PLAN
 SCALE: 1"=40'

TAMPA AVENUE
 60' PUBLIC R/W





UTILITY NOTES:

A UTILITY MAINLINE CONSTRUCTION PERMIT IS REQUIRED PRIOR TO THE INSTALLATION OF EACH UTILITY. ALL UTILITIES SHALL SUBMIT PLAN DRAWINGS AND APPLICATIONS TO THE CITY ENGINEERING DIVISION

- ALL WORK TO BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER DISTRIBUTION AND WASTEWATER COLLECTION SYSTEMS OF THE CITY OF DURHAM STANDARDS AND POLICIES. INSTALLATION, TESTING, AND CERTIFICATION OF BACKFLOW DEVICES SHALL BE IN ACCORDANCE WITH THE DURHAM CROSS CONNECTION CONTROL ORDINANCE AND MANUAL.
- CONTRACTOR TO FIELD VERIFY ALL EXISTING UTILITY LOCATIONS AND DEPTHS PRIOR TO MOBILIZATION. REPORT THE RESULTS TO THE ENGINEER OF RECORD. NO ADDITIONAL COMPENSATION SHALL BE PROVIDED FOR WORK THAT MUST BE REDONE IF CONFLICTS ARE NOT REPORTED TO THE ENGINEER PRIOR TO BEGINNING INSTALLATION.
- ALL UTILITY WORK SHALL CONFORM TO APPLICABLE CITY AND STATE CODES.
- ALL CLEANOUTS LOCATED IN PAVEMENT AND/OR VEHICULAR USE AREAS WILL BE TRAFFIC BEARING AND WILL WITHSTAND A H-20 LOADING. THESE CLEANOUTS ARE DESIGNATED (TBCO) TRAFFIC BEARING CLEAN OUT ON THE PLANS.
- ALL WATER LINES ARE TO BE PRIVATE UNLESS OTHERWISE NOTED.
- ALL WATER LINES SHALL HAVE A MINIMUM OF 36" COVER.
- POWER, TELEPHONE, AND GAS SERVICES SHALL BE UNDERGROUND. ACCESS AND SERVICE ROUTES TO BE COORDINATED WITH THE PUBLIC UTILITIES AND THE DEVELOPER.
- ALL NEW FIRE HYDRANTS AND FIRE DEPARTMENT CONNECTIONS MUST BE PROVIDED WITH 5 INCH DIAMETER STORZ CONNECTIONS. FIRE DEPARTMENT CONNECTION INLET MUST BE ORIENTED 30 DEGREES TOWARDS GRADE.
- ALL FEATURES SHOWN NOT TO BE REMOVED ARE TO REMAIN. ANY AND ALL DAMAGE RESULTING FROM CONSTRUCTION SHALL BE REPAIRED AT NO ADDITIONAL EXPENSE TO THE OWNER.
- CONTRACTOR SHALL FIELD VERIFY THE LOCATIONS AND DEPTHS OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. REPORT ANY AND ALL DISCREPANCIES AND/OR CONFLICTS TO THE ENGINEER IMMEDIATELY. ANY WORK PERFORMED THAT MUST BE RE-WORKED SHALL BE DONE AT THE CONTRACTOR'S EXPENSE IF NOTIFICATION IS NOT GIVEN IN A TIMELY MANNER.
- UTILITIES SHOWN ON THESE PLANS ARE BASED ON A FIELD SURVEY AND DURHAM GIS. CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES. ENGINEER SHALL NOT BE HELD LIABLE FOR CONFLICTS OR WORK THAT MUST BE RE-DONE AS A RESULT OF UTILITIES NOT SHOWN ON THESE PLANS OR SHOWN INCORRECTLY ON THESE PLANS.
- WATER METERS SHALL NOT BE LOCATED IN DRIVEWAYS AND CLEAN-OUTS LOCATED IN DRIVEWAYS SHALL BE TRAFFIC BEARING.

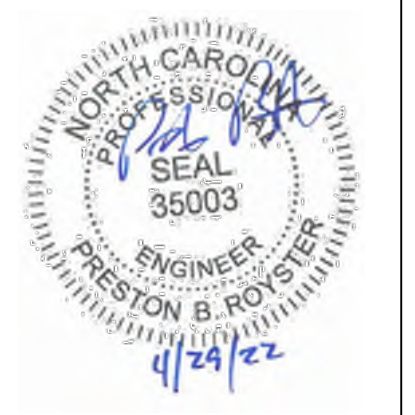
3/CD-5.0
UTILITY NOTES



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LIC # C-1209

NC BOARD OF LANDSCAPE ARCHITECTS
LIC # C-104



Project
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1201 Edwards Mill Rd
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Raleigh, NC 27607

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0812-08-98-1577, 0812-08-98-1571,
0812-08-98-5616, 0812-08-98-1464,
0812-08-98-1365, 0812-08-98-1256,
0812-08-98-4296

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Sheet Title

UTILITY PLAN

Sheet Number

CD-5.0

Description	Quantity	Unit
1" ASSE# 1013 RPZ Backflow Preventer in Above Ground Heated Insulated ASSE#1060 Enclosure	1	Count
1" Water Meter	1	Count
2" Water Pipe	48.33	ft
3/4" Type K Cu Water Pipe	2,648.04	ft
4" Sanitary Pipe	1,970.65	ft
4" Sewer Cleanout	80	Count
4" Water Gate VALVE	1	Count
4" Water Pipe	103.66	ft
4"x6" Water Tee	1	Count
5/8" Water Meter Box	80	Count
6" Water 45 Degree Bend	10	Count
6" Water FH	5	Count
6" Water Gate VALVE	7	Count
6" Water Pipe	646.13	ft
8" Sanitary Sewer Pipe	1,462.59	ft
8" Water Gate VALVE	4	Count
8" Water Pipe	535.13	ft
8"x4" Water Reducer	2	Count
8"x6" Water Tee	3	Count
12"x6" Water Reducer	1	Count
12"x8" Water Reducer	2	Count
12" Cut in Gate Valve	1	Count
12" Water 45 Degree Bend	2	Count
12" Water Gate VALVE	3	Count
12" Water Pipe	655.54	ft
12"x6" Water Tee	2	Count
12"x12" Cut in Tee	1	Count
12"x12" Water Tee	2	Count
Doghouse Manhole # 1 Tie to Existing Public Sewer	1	Count
Install 4" Water Plug With 2" Blowoff	2	Count
Install 8" Water Plug With 2" Blowoff	1	Count
Sanitary Ser Manhole	13	Count

UTILITY PLAN
SCALE: 1"=40'

2/CD-5.0
STANDARD UTILITY NOTES

WATER, SANITARY SEWER AND STORM SEWER SEPARATION NOTES:

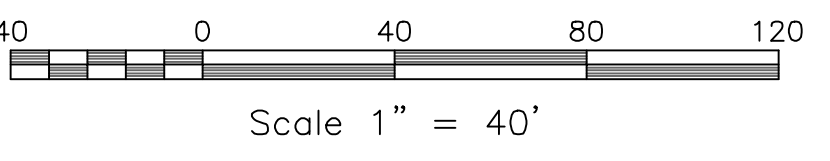
- HORIZONTAL AND VERTICAL SEPARATION
 - SANITARY SEWERS SHALL BE LAID AT LEAST 10-FOOT HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. IN CASES WHERE IT IS NOT PRACTICAL TO MAINTAIN A 10-FOOT SEPARATION, THE CITY OF DURHAM MAY ALLOW DEVIATION ON A CASE-BY-CASE BASIS, IF SUPPORTED BY DATA FROM THE DESIGN ENGINEER. SUCH DEVIATION ON MAY ALLOW THE INSTALLATION OF THE SANITARY SEWER CLOSER TO A WATER MAIN, PROVIDED THAT THE WATER MAIN IS IN A SEPARATE TRENCH OR ON AN UNDISTURBED EARTH SHELF LOCATED ON ONE SIDE OF THE SANITARY SEWER AND AT AN ELEVATION SO THE BOTTOM OF THE WATER MAIN IS AT LEAST 18-INCHES ABOVE THE TOP OF THE SEWER.
 - IF IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS DESCRIBED ABOVE OR ANYTIME THE SANITARY SEWER IS OVER THE WATER MAIN, BOTH THE WATER MAIN AND SANITARY SEWER MUST BE CONSTRUCTED OF FERROUS PIPE COMPLYING WITH THE PUBLIC WATER SUPPLY DESIGN STANDARDS AND BE PRESSURE TESTED TO 150PSI TO ASSURE WATER TIGHTNESS BEFORE BACKFILLING.
 - A 18-INCH VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN STORM SEWER AND SANITARY SEWER LINES OR FERROUS PIPE SPECIFIED. A 12-INCH VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN STORM SEWER AND WATER MAINS.
- IF A 12-INCH VERTICAL SEPARATION IS NOT MAINTAINED AT A CROSSING BETWEEN

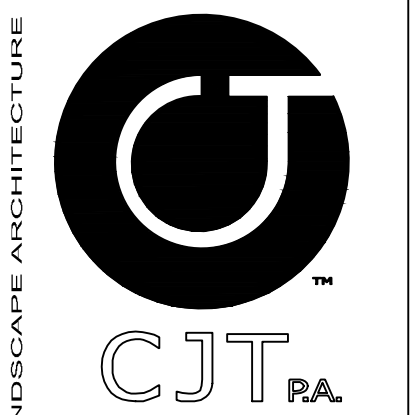
STORM SEWER AND WATER MAINS (OR PRESSURE SEWERS). THE WATER MAIN SHALL BE CONSTRUCTED OF FERROUS PIPE AND A CONCRETE COLLAR SHALL BE POURED AROUND WATER MAINS AND STORM SEWER TO IMMobilize THE CROSSING.

- CROSSINGS
 - SANITARY SEWER CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18-INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SANITARY SEWER. THE CROSSING SHALL BE ARRANGED SO THAT THE SANITARY SEWER JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE WATER MAIN JOINTS.
 - WHEN IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, ONE OF THE FOLLOWING METHODS MUST BE SPECIFIED.
 - THE SANITARY SEWER SHALL BE DESIGNED AND CONSTRUCTED OF FERROUS PIPE AND SHALL BE PRESSURE TESTED AT 150-PSI TO ASSURE WATER TIGHTNESS PRIOR TO BACKFILLING, OR
 - EITHER THE WATER MAIN OR THE SANITARY SEWER LINE MAY BE ENCASED IN A WATERTIGHT CARRIER PIPE, WHICH EXTENDS 10- FEET ON BOTH SIDES OF THE CROSSING, MEASURED PERPENDICULAR TO THE WATER MAIN. THE CARRIER PIPE SHALL BE OF MATERIALS APPROVED BY THE CITY OF DURHAM FOR USE IN WATER MAIN CONSTRUCTION.

CITY OF DURHAM
PUBLIC WORKS DEPARTMENT
APPROVED

ENGINEERING _____ DATE _____
STORM WATER _____ DATE _____
TRANSPORTATION _____ DATE _____
WATER MANAGEMENT _____ DATE _____





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Job Number 1967
Drawn ED, MPM, KMB
Checked USA, FBR
Date 04/28/2022
Revisions

**FINAL DESIGN
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CONSTRUCTION**

Sheet Title

LIGHTING PLAN

Sheet Number

CD-6.0

THE SITE LIGHTING SHALL BE DESIGNED SO THAT THE LEVEL OF ILLUMINATION AS MEASURED IN FOOT-CANDELES (FC) AT ANY ONE POINT MEETS THE STANDARDS IN THE TABLE BELOW WITH MINIMUM AND MAXIMUM LEVELS MEASURED ON THE PAVEMENT WITHIN THE LIGHTED AREA. THE LIGHTING SHALL BE VERIFIED BY FIELD SURVEY (BY USE OF PHOTOMETRIC SURVEY) PRIOR TO THE CERTIFICATE OF COMPLIANCE.

Type of Lighting	LIGHT LEVEL (in foot-candles)	
	Minimum at Any Point	Maximum at Any Point
Architectural Lighting, Landscape or Decorative Lighting Walkways except for those listed below	0.0	5.0
Emergency Area Lighting	2.0	24.0
Maximum Footcandle and Malls (Article 11)	1.0	15.0
Maximum Footcandle and Malls (Article 11)	0.5	8.0
Nonresidential and Multi-Family Entrances	1.0	15.0
Nonresidential Parking Lot	0.5	5.0
Double walkways between building entrances, between parking and a building entrance or parking to meet sidewalk requirements per Sec. 12.2, Pedestrian and Bicycle Mobility	0.2	2.0
Storage Area (security lighting)	0.5	10.0
Vehicle Sales and Display	0.5	24.0

STANDARD C.O.D. LIGHTING NOTES

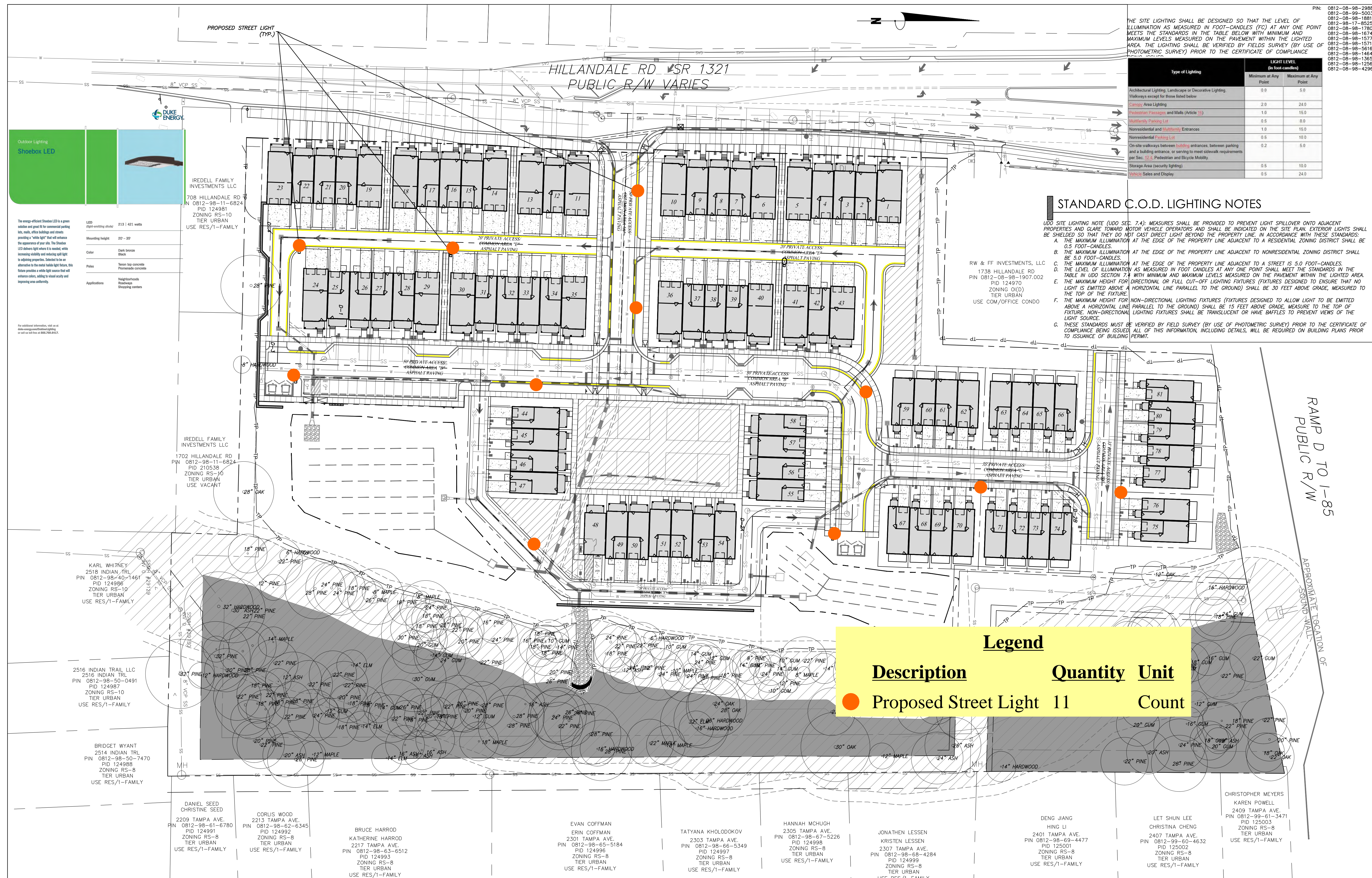
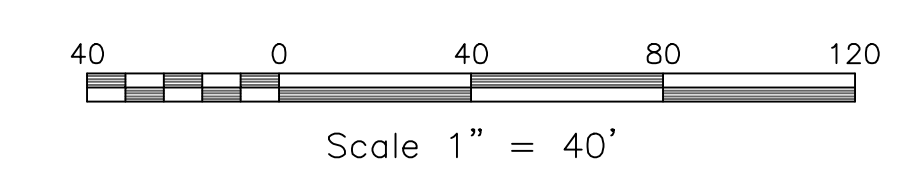
- UDO SITE LIGHTING NOTE (UDO SEC. 7.4): MEASURES SHALL BE PROVIDED TO PREVENT LIGHT SPILLOVER ONTO ADJACENT PROPERTIES AND GLARE TOWARD MOTOR VEHICLE OPERATORS AND SHALL BE INDICATED ON THE SITE PLAN. EXTERIOR LIGHTS SHALL BE SHIELDED SO THAT THEY DO NOT CAST DIRECT LIGHT BEYOND THE PROPERTY LINE. IN ACCORDANCE WITH THESE STANDARDS:
- THE MAXIMUM ILLUMINATION AT THE EDGE OF THE PROPERTY LINE ADJACENT TO A RESIDENTIAL ZONING DISTRICT SHALL BE 0.5 FOOT-CANDELES.
 - THE MAXIMUM ILLUMINATION AT THE EDGE OF THE PROPERTY LINE ADJACENT TO A NONRESIDENTIAL ZONING DISTRICT SHALL BE 5.0 FOOT-CANDELES.
 - THE MAXIMUM ILLUMINATION AT THE EDGE OF THE PROPERTY LINE ADJACENT TO A STREET IS 5.0 FOOT-CANDELES.
 - THE LEVEL OF ILLUMINATION AS MEASURED IN FOOT CANDELES AT ANY ONE POINT SHALL MEET THE STANDARDS IN THE TABLE IN UDO SECTION 7.4 WITH MINIMUM AND MAXIMUM LEVELS MEASURED ON THE PAVEMENT WITHIN THE LIGHTED AREA.
 - THE MAXIMUM HEIGHT FOR DIRECTIONAL OR FULL CUT-OFF LIGHTING FIXTURES (FIXTURES DESIGNED TO ENSURE THAT NO LIGHT IS EMITTED ABOVE A HORIZONTAL LINE PARALLEL TO THE GROUND) SHALL BE 30 FEET ABOVE GRADE, MEASURED TO THE TOP OF THE FIXTURE.
 - THE MAXIMUM HEIGHT FOR NON-DIRECTIONAL LIGHTING FIXTURES (FIXTURES DESIGNED TO ALLOW LIGHT TO BE EMITTED ABOVE A HORIZONTAL LINE PARALLEL TO THE GROUND) SHALL BE 15 FEET ABOVE GRADE, MEASURED TO THE TOP OF THE FIXTURE. NON-DIRECTIONAL LIGHTING FIXTURES SHALL BE TRANSLUCENT OR HAVE BAFFLES TO PREVENT VIEWS OF THE LIGHT SOURCE.
 - THESE STANDARDS MUST BE VERIFIED BY FIELD SURVEY (BY USE OF PHOTOMETRIC SURVEY) PRIOR TO THE CERTIFICATE OF COMPLIANCE BEING ISSUED. ALL OF THIS INFORMATION, INCLUDING DETAILS, WILL BE REQUIRED ON BUILDING PLANS PRIOR TO ISSUANCE OF BUILDING PERMIT.

Legend

Description	Quantity	Unit
Proposed Street Light	11	Count

LIGHTING NOTES

- MEASURES SHALL BE PROVIDED TO PREVENT LIGHT SPILLOVER ONTO ADJACENT PROPERTIES AND GLARE TOWARD MOTOR VEHICLE OPERATORS. EXTERIOR LIGHTS SHALL BE SHIELDED SO THAT THEY DO NOT CAST DIRECT LIGHT BEYOND THE PROPERTY LINE.
- CONTRACTOR TO PROVIDE 2" SCH 40 PWD GRAY ELECTRICAL CONDUIT UNDER PAVEMENT UNDER HEAVILY LANDSCAPED AREAS AND AS NECESSARY TO PROVIDE ACCESS TO ALL LIGHT FIXTURES/POLES AND CONNECT BACK TO ELECTRICAL TIE IN LOCATIONS.
- CONTRACTOR TO COORDINATE LIGHT POLE AND CONDUIT LOCATIONS PRIOR TO PAVING.
- ALL ELECTRICAL CONDUIT, LIGHT POLES AND FIXTURES SHALL BE FURNISHED BY THE CONTRACTOR.
- ALL CONDUIT ENDS ARE TO BE CAPPED TO PREVENT ENTRY OF DEBRIS.
- ALL CONDUITS MORE THAN 30' IN LENGTH SHALL HAVE A POLY STRING INSTALLED.
- ALL JOINTS ARE TO BE SOLVENT WELDED.



**Outdoor Lighting
Shoeblox LED**

DUKE ENERGY

IREDELL FAMILY INVESTMENTS LLC
708 HILLDALE RD
PIN 0812-98-11-6824
PID 124981
ZONING RS-10
TIER URBAN
USE RES/1-FAMILY

IREDELL FAMILY INVESTMENTS LLC
1702 HILLDALE RD
PIN 0812-98-11-6824
PID 210538
ZONING RS-10
TIER URBAN
USE VACANT

KARL WHITNEY
2518 INDIAN TRL
PIN 0812-98-50-1461
PID 124986
ZONING RS-10
TIER URBAN
USE RES/1-FAMILY

2516 INDIAN TRAIL LLC
2516 INDIAN TRL
PIN 0812-98-50-0491
PID 124987
ZONING RS-10
TIER URBAN
USE RES/1-FAMILY

BRIDGET NYANT
2514 INDIAN TRL
PIN 0812-98-50-7470
PID 124988
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

DANIEL SEED
CHRISTINE SEED
2209 TAMPA AVE.
PIN 0812-98-61-6780
PID 124991
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

CORLIS WOOD
2213 TAMPA AVE.
PIN 0812-98-62-6345
PID 124992
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

BRUCE HARROD
KATHERINE HARROD
2217 TAMPA AVE.
PIN 0812-98-63-8512
PID 124993
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

EVAN COFFMAN
ERIN COFFMAN
2301 TAMPA AVE.
PIN 0812-98-65-5184
PID 124996
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

TATYANA KHOLODOKOV
2303 TAMPA AVE.
PIN 0812-98-66-5349
PID 124997
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

HANNAH MCHUGH
2305 TAMPA AVE.
PIN 0812-98-67-5226
PID 124998
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

JONATHAN LESSEN
KRISTEN LESSEN
2307 TAMPA AVE.
PIN 0812-98-68-4284
PID 124999
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

DENG JIANG
HING LI
2401 TAMPA AVE.
PIN 0812-98-69-4477
PID 125001
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

LET SHUN LEE
CHRISTINA CHENG
2407 TAMPA AVE.
PIN 0812-99-60-4632
PID 125002
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

CHRISTOPHER MEYERS
KAREN POWELL
2409 TAMPA AVE.
PIN 0812-99-61-3471
PID 125003
ZONING RS-8
TIER URBAN
USE RES/1-FAMILY

LED LIGHTING SPECIFICATIONS:
LDD (light emitting diode) 213 | 421 watts
Mounting height 20 - 30'
Color Dark bronze
Black
Finish Terrain top concrete
Promenade concrete
Applications Neighborhoods
Retailers
Shopping centers

The energy-efficient Shoeblox LED is a great solution and great for commercial parking lots, walkways, office buildings and streets providing a "white light" that will enhance the appearance of your site. The Shoeblox LED allows light waves to be directed, while increasing visibility and reducing spill light in adjoining properties. Selected to be an alternative to the most widely used light fixture, this fixture provides a white light source that will enhance colors, adding to visual acuity and improving area visibility.

For additional information, visit us at www.dukeenergysolutions.com/lighting or call us today at 888.768.8447.

**1/CD-6.0
LIGHTING PLAN
SCALE: 1"=40'**

STREET TREE CALCULATIONS

* 1 UNDERSTORY STREET TREE PER 30 LF OF R/W FRONTAGE
 HILLDALE ROAD: 648 / 30 = 22 TREES

BUFFER CALCULATIONS

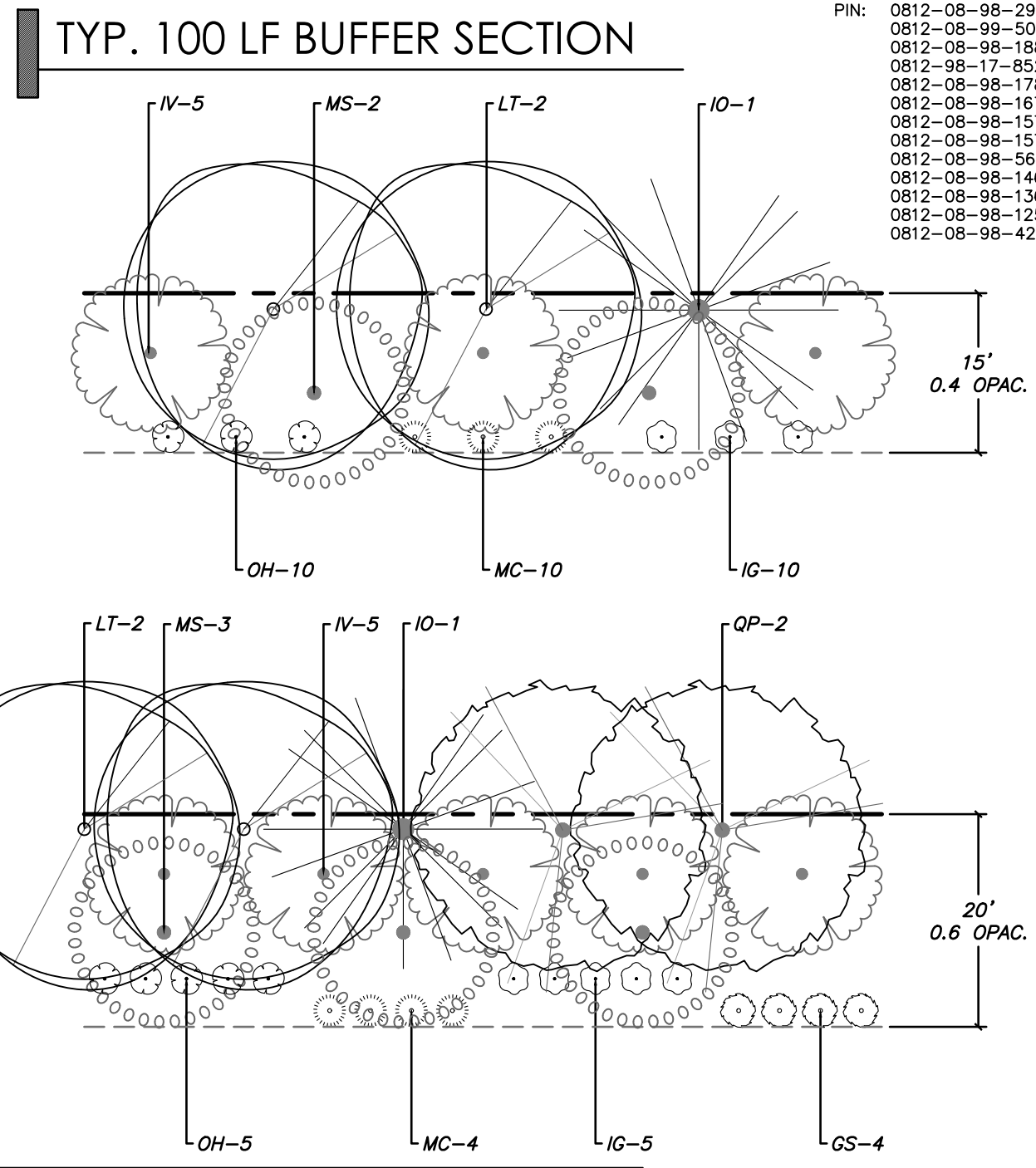
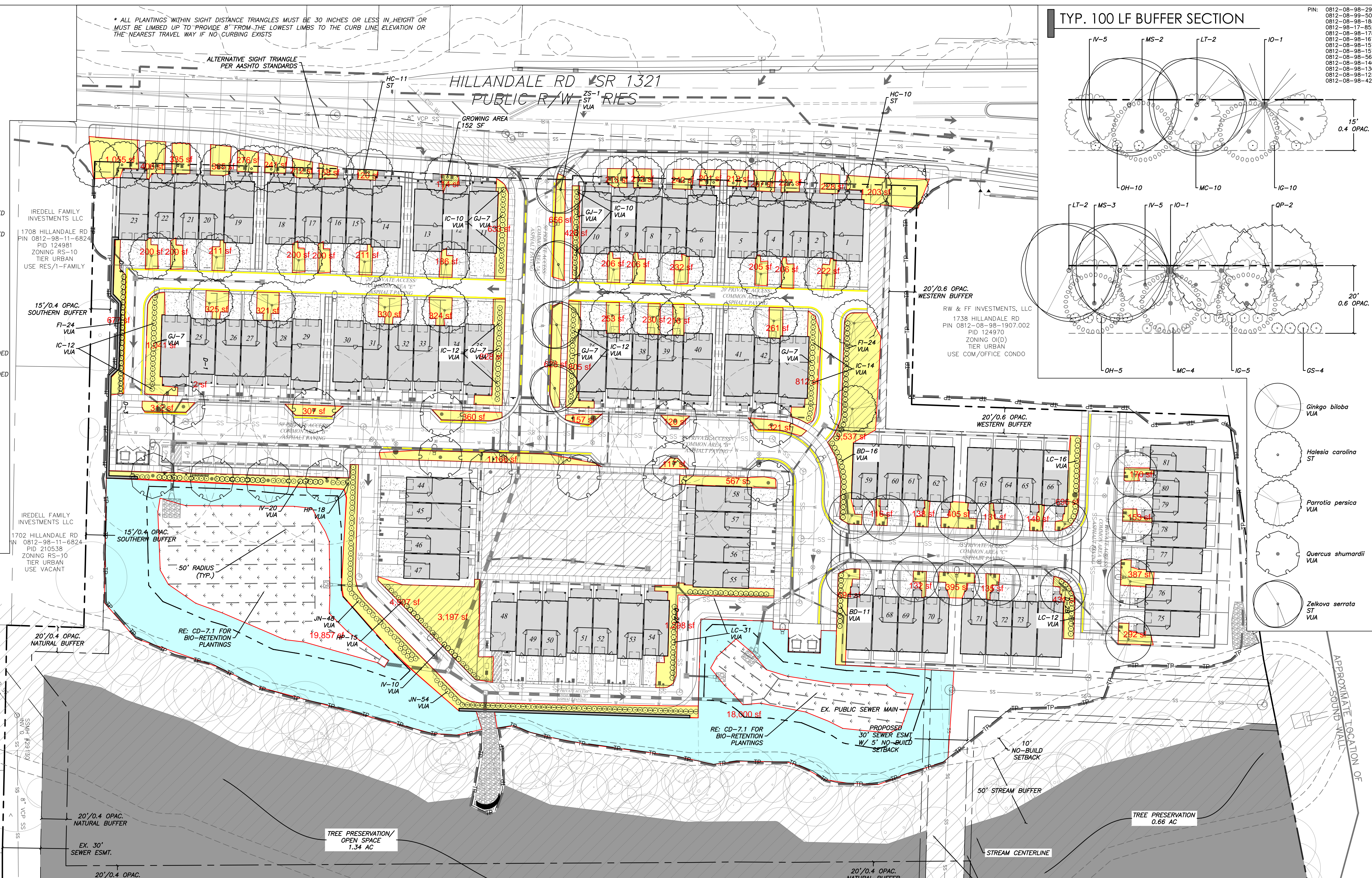
SOUTHERN BUFFER = 300 LF
 15', 0.4 OPACITY, ALT. 1 - MIXED EVERGREEN
 2 DECIDUOUS CANOPY TREES PER 100 LF
 3.00 x 2 = 6 DECIDUOUS CANOPY TREES REQUIRED/PROVIDED
 * LT-8
 1 EVERGREEN CANOPY TREES PER 100 LF
 3.00 x 1 = 3 EVERGREEN CANOPY TREES REQUIRED/PROVIDED
 * IO-3
 2 DECIDUOUS UNDERSTORY TREES PER 100 LF
 3.00 x 2 = 6 EVERGREEN UNDERSTORY TREES REQUIRED/PROVIDED
 * MS-6
 3 EVERGREEN UNDERSTORY TREES PER 100 LF
 3.00 x 3 = 9 EVERGREEN UNDERSTORY TREES REQUIRED/PROVIDED
 * IV-9
 9 SHRUBS PER 100 LF
 3.00 x 9 = 27 SHRUBS REQUIRED/PROPOSED
 * IG-9, MC-9, OH-9

WESTERN BUFFER = 425 LF
 20', 0.6 OPACITY, ALT. 1 - MIXED EVERGREEN
 4 DECIDUOUS CANOPY TREES PER 100 LF
 4.25 x 4 = 17 DECIDUOUS CANOPY TREES REQUIRED/PROVIDED
 * LT-9, OP-8
 1 EVERGREEN CANOPY TREES PER 100 LF
 4.25 x 1 = 5 EVERGREEN CANOPY TREES REQUIRED/PROVIDED
 * IO-5
 3 DECIDUOUS UNDERSTORY TREES PER 100 LF
 4.25 x 3 = 13 EVERGREEN UNDERSTORY TREES REQUIRED/PROVIDED
 * MS-13
 5 EVERGREEN UNDERSTORY TREES PER 100 LF
 4.25 x 5 = 22 EVERGREEN UNDERSTORY TREES REQUIRED/PROVIDED
 * IV-22
 18 SHRUBS PER 100 LF
 4.25 x 18 = 77 SHRUBS REQUIRED/PROPOSED
 * GS-17, IG-22, MC-17, OH-21

VUA CALCULATIONS

TREES SHALL BE PLANTED AT A RATE OF ONE 2-INCH CALIPER CANOPY TREE PER 2,000 SF OF VEHICULAR USE AREA. SHRUBS SHALL BE PLANTED AT A RATE OF ONE PER 250 SF OF VEHICULAR USE AREA.
 TOTAL VUA AREA = 102,986 SF
 102,986 / 2,000 = 52 CANOPY TREES REQUIRED/59 PROVIDED
 102,986 / 250 = 412 SHRUBS REQUIRED/PROVIDED
 15% OF TOTAL VUA AREA REQUIRED FOR VUA PLANTINGS = 15,448 SF REQUIRED/PROVIDED
 VEHICULAR USE AREA TREES AND SHRUBS HAVE BEEN DENOTED AS (VUA) ON THIS PLAN.

* ALL PLANTINGS WITHIN SIGHT DISTANCE TRIANGLES MUST BE 30 INCHES OR LESS IN HEIGHT OR MUST BE LIMBED UP TO PROVIDE 8" FROM THE LOWEST LIMBS TO THE CURB LINE ELEVATION OR THE NEAREST TRAVEL WAY IF NO CURBING EXISTS



- Ginkgo biloba VUA
- Halesia carolina ST
- Parrotia persica VUA
- Quercus shumardii VUA
- Zelkova serrata ST VUA

Legend			
Description	Quantity	Unit	
Mulch Area	38,531	sf	
Soded Bermuda Lawn	37,857	sf	

TATYANA KHOLODOKOV
 2303 TAMPA AVE.
 PIN 0812-98-66-5349
 PID 124997
 ZONING RS-8
 TIER URBAN
 USE RES/1-FAMILY

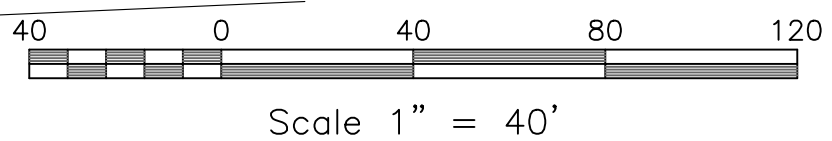
HANNAH MCHUGH
 2305 TAMPA AVE.
 PIN 0812-98-67-5226
 PID 124998
 ZONING RS-8
 TIER URBAN
 USE RES/1-FAMILY

JONATHAN LESSEN
 2307 TAMPA AVE
 PIN 0812-98-65-4
 PID 124999
 ZONING RS-8
 TIER URBAN
 USE RES/1-FAMILY

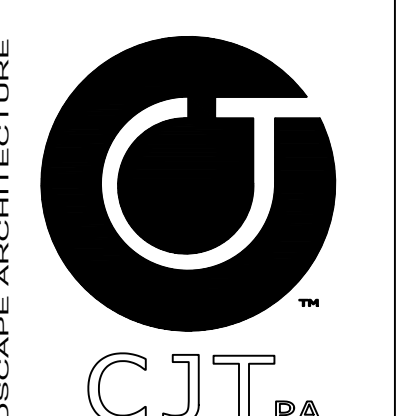
KEY	QTY.	BOTANICAL NAME	COMMON NAME	Cal*	HT*	ROOT	REMARKS
DECIDUOUS CANOPY TREES							
GB	14	Ginkgo biloba	Ginkgo	2"	-	B&B	Full, Match, Straight leader
LT	15	Liriodendron tulipifera	Tulip Poplar	2"	-	B&B	Full, Match, Straight leader
PP	19	Parrotia persica	Persian Parrotia	2"	-	B&B	Full, Match, Straight leader
QP	8	Quercus phellos	Willow Oak	2"	-	B&B	Full, Match, Straight leader
GS	15	Quercus shumardii	Shumard Oak	2"	-	B&B	Full, Match, Straight leader
ZS	4	Zelkova serrata	Japanese Zelkova	2"	-	B&B	Full, Match, Straight leader
EVERGREEN CANOPY TREES							
IO	8	Ilex opaca	American Holly	-	8'	B&B	Full, Match, Straight leader
DECIDUOUS UNDERSTORY TREES							
HC	21	Halesia carolina	Carolina Silverbell	-	8'	B&B	Full, Match, Straight leader
MS	19	Magnolia stellata	Star Magnolia	-	8'	B&B	Full, Match, Straight leader
EVERGREEN UNDERSTORY TREES							
YV	31	Ilex vomitoria	Yaupon Holly	-	6'	B&B	Full, Match, Straight leader
SHRUBS							
BD	27	Buddleia davidii 'Pugster Blue'	Butterfly Bush	-	15"	Cont.	Full, Match
FI	48	Forsythia x intermedia	Forsythia	-	15"	Cont.	Full, Match
GI	42	Gardenia jasminoides 'Frostproof'	Frostproof Gardenia	-	15"	Cont.	Full, Match
GS	17	Gelsemium sempervirens	Carolina Yellow Jessamine	-	15"	Cont.	Full, Match
HP	33	Hydrangea paniculata 'Little Lime'	Little Lime Hydrangea	-	15"	Cont.	Full, Match
IC	70	Ilex cornuta 'Soft Touch'	Soft Touch Holly	-	15"	Cont.	Full, Match
IG	31	Ilex glabra	Boxberry Holly	-	15"	Cont.	Full, Match
IV	30	Ilex vomitoria 'Schillings'	Dwarf Yaupon Holly	-	15"	Cont.	Full, Match
JN	103	Jasminum nudiflorum	Jasmine	-	15"	Cont.	Full, Match
LC	59	Loropetalum chinensis var. rubrum 'Daruma'	Daruma Loropetalum	-	15"	Cont.	Full, Match
MC	26	Myrica cerifera	Waxmyrtle	-	15"	Cont.	Full, Match
OH	30	Osmanthus heterophyllus	Holly Osmanthus	-	15"	Cont.	Full, Match

*CA. AND HT. REFERS TO SIZE OF PLANT MATERIAL AT TIME OF INSTALLATION. ALL PLANT MATERIAL SPECIFIED MUST MEET OR EXCEED THE PLANT CAL. AND HT. AT TIME OF INSTALLATION.
 *DECIDUOUS CANOPY TREES MUST MEET OR EXCEED MINIMUM CALIPER REQUIREMENTS SHOWN ABOVE TO MEET MINIMUM CITY OF DURHAM ORDINANCE REQUIREMENTS.

1/CD-7.0
 LANDSCAPE PLAN
 SCALE: 1"=40'



TAMPA AVENUE
 60' PUBLIC R/W



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 www.cjtpa.com

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 LIC # C-1209

NC BOARD OF
 LANDSCAPE ARCHITECTS
 LIC # C-104



Project
1700 HILLDALE ROAD
 Durham County,
 North Carolina

Owner:
 Hilldale Partners LLC
 1201 Edwards Mill Rd
 Suite 300
 Raleigh, NC 27607

PINS:
 0812-08-98-2988, 0812-08-99-5003,
 0812-08-98-1881, 0812-08-17-8525,
 0812-08-98-1780, 0812-08-98-1674,
 0812-08-98-1577, 0812-08-98-1571,
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 0812-08-98-1365, 0812-08-98-1256,
 0812-08-98-4296

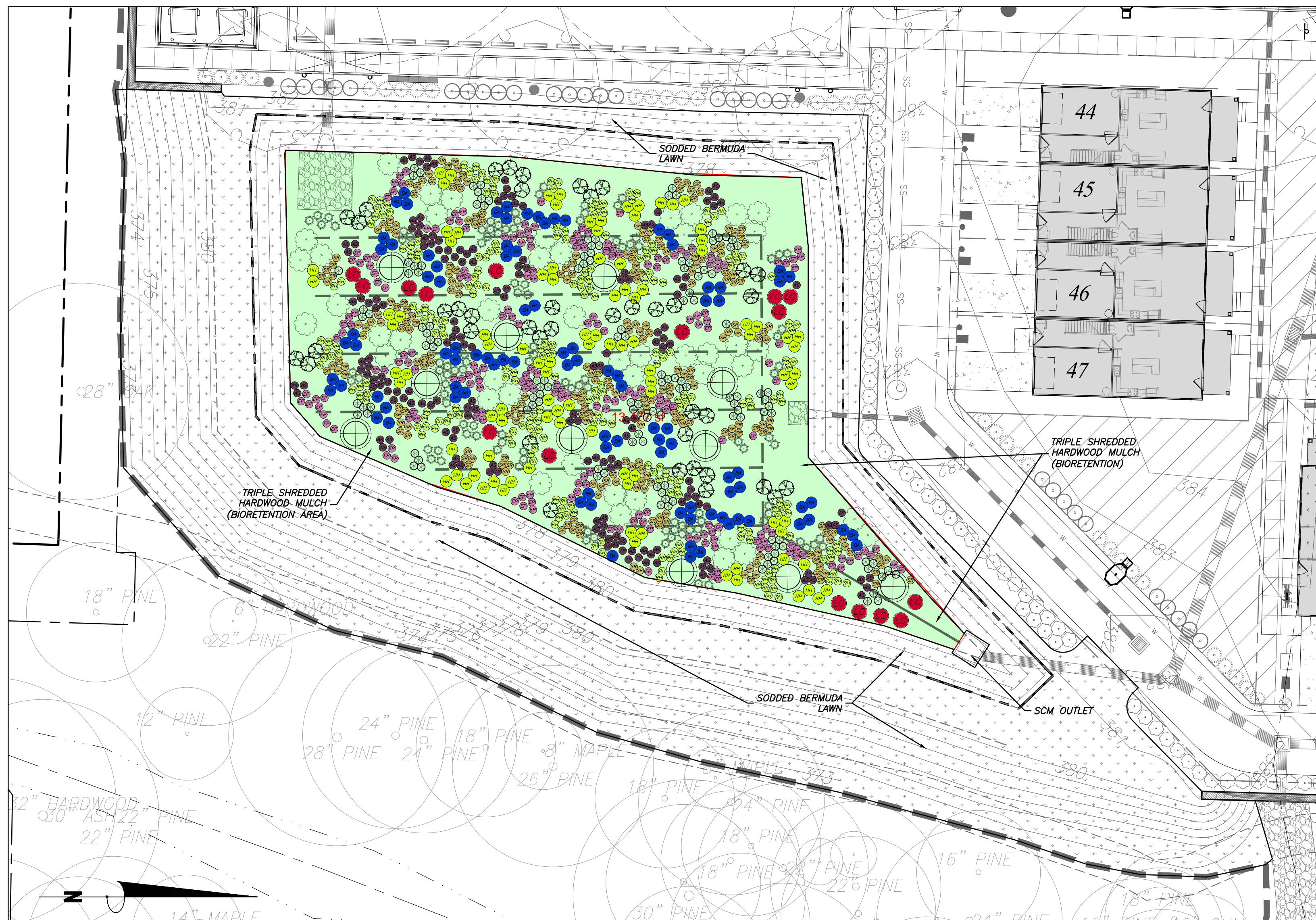
Job Number 1967

Drawn ED, MPM, KMB
 Checked JSA, PBR
 Date 04/28/2022
 Revisions

FINAL DESIGN
 NOT RELEASED FOR
 CONSTRUCTION

LANDSCAPE
 PLAN

CD-7.0



**1/CD-7.1
BIORETENTION AREA #1**
SCALE: 1"=20'

**2/CD-7.1
BIORETENTION AREA #2**
SCALE: 1"=20'

Qty	Sym	Botanic Name	Common Name	Installation Size	Spacing	Coverage (@ 5 years)	Total Coverage
TREES/SHRUBS							
11	TD	Taxodium distichum	Bald Cypress	7-8' ht	as shown	8' dia (50.3 sf)	553.3 sf
45	IL	Ilex verticillata	Winterberry	3 gal.	4'-5' o.c.	6' dia (28.3 sf)	1,273.5 sf
40	IV	Itea virginica	Virginia Sweetspire	3 gal.	4'-5' o.c.	4' dia (12.5 sf)	500.0 sf
GRASSES/PERENNIALS							
172	AS	Asclepias incarnata	Milkweed	1 gal.	2' o.c.	2' dia (3.1 sf)	533.2 sf
95	BA	Baptisia australis	Blue False Indigo	1 gal.	3' o.c.	3' dia (7.1 sf)	674.5 sf
208	EP	Echinacea purpurea	Purple Coneflower	1 gal.	2' o.c.	2' dia (3.1 sf)	644.8 sf
100	HH	Helopsis helianthoides	False Sunflower	1 gal.	3' o.c.	3' dia (7.1 sf)	710.0 sf
16	LC	Lobelia cardinalis	Cardinal Flower	1 gal.	2' o.c.	2' dia (3.1 sf)	49.6 sf
132	PV	Panicum virgatum	Switch Grass	3 gal.	3' o.c.	3' dia (7.1 sf)	937.2 sf
226	RH	Rudbeckia hirta	Blackeyed Susan	1 gal.	2' o.c.	2' dia (3.1 sf)	700.6 sf
242	SR	Salidago rugosa	Goldenrod	1 gal.	2' o.c.	2' dia (3.1 sf)	750.2 sf
106	SN	Sorghastrum nutans	Indiangrass	1 gal.	2' o.c.	2' dia (3.1 sf)	328.6 sf

NOTE: CONTRACTOR SHALL REFER TO CD-1 FOR LANDSCAPE NOTES

TOTAL BIO-RETENTION AREA: 13,511 SF
 PROPOSED PLANT COVERAGE: 7,655.6 SF (56% of bio-retention area)
 TREE / SHRUBS = 2,282.8 SF (30% of proposed coverage)
 HERBACEOUS = 5,328.7 SF (70% of proposed coverage)

- BIORETENTION NOTES:
- ALL SEDIMENT AND EROSION CONTROL PRACTICES SHALL BE IN PLACE AND THE SLOPES DRAINING TO THE BIORETENTION AREA SHALL BE STABILIZED BEFORE CONSTRUCTION OF THE BIORETENTION AREA BEGINS. ALL UPHILL AREAS DRAINING TO THE BIORETENTION AREA INCLUDING PARKING AND BUILDINGS MUST BE STABILIZED AND PAVED PRIOR TO BEGINNING CONSTRUCTION OF THE BIORETENTION AREA.
 - THE BIORETENTION SOIL MIX SHALL BE AT LEAST 36" DEEP AND SHALL BE A MIX THAT MEETS THE FOLLOWING SPECIFICATIONS:
 - 85% - 88% (BY VOLUME) ASTM C-33 SAND
 - 8% - 12% (BY VOLUME) FINES (INCLUDES BOTH SILTS AND CLAYS)
 - 3% - 5% (BY VOLUME) ORGANIC/PPEAT MOSS (NOTE: THE ORGANIC MATERIAL SHALL BE WELL MIXED OR LAYERED IN THE UPPER 18" OF THE SOIL MIX.)
 - THE IN-PLACE HYDRAULIC CONDUCTIVITY RANGE OF THE SOIL MIX SHALL BE BETWEEN 1.0-2.0 INCHES/HOUR. THE MEDIA SHOULD BE TESTED TO DETERMINE THE ACTUAL DRAINAGE RATE AFTER PLACEMENT
 - THE SOIL MIX SHALL HAVE A P-INDEX RANGE BETWEEN 10 AND 25
 - SOIL MEDIA SHOULD BE SENT TO NC DEPARTMENT OF AGRICULTURE LABS TO BE ANALYZED
 - SOD THAT IS INSTALLED MUST NOT BE GROWN IN SOIL THAT HAS AN IMPERMEABLE LAYER, SUCH AS CLAY.
 - THE FILL SOIL MEDIA SHALL BE FREE OF STONES, STUMPS, ROOTS, OR SIMILAR OBJECTS LARGER THAN 1". SOIL SHALL BE PLACED IN LAYERS LESS THAN 18".
 - ALL SLOPES DRAINING TO THE BIORETENTION AREA SHALL BE STABILIZED PRIOR TO INSTALLATION OF THE UNDERDRAIN SYSTEM.
 - THE BIORETENTION AREA MUST BE COMPLETE PRIOR TO OBTAINING C.O.
 - CONTRACTOR TO PROVIDE ELEVATIONS AT THE TOP OF THE MULCH, TOP OF PLANTING SOIL MEDIA, TOP OF THE SAND LAYER, TOP OF GRAVEL, AND BOTTOM OF BIORETENTION AREA TO THE ENGINEER. CONTRACTOR SHALL PROVIDE SPACING OF UNDERDRAIN PIPING TO THE ENGINEER. IF THIS INFORMATION IS NOT PROVIDED, CONTRACTOR SHALL VERIFY ELEVATIONS BY EXCAVATING DOWN TO EACH LAYER AND REPAIR BIORETENTION AREA AT NO ADDITIONAL COST TO THE OWNER.
 - CONTRACTOR TO CONDUCT IN-PLACE INFILTRATION TESTING ON THE SOIL MEDIA. THE INFILTRATION RATE MUST BE BETWEEN 1-2 IN/HR. DOUBLE RING INFILTRATION TESTS (MINIMUM OF 2 TESTS OR 1 TEST/1000 SF OF FILTER MEDIA SURFACE AREA, WHICHEVER IS GREATER) SHALL BE PERFORMED AT THE COMPLETION OF THE BIORETENTION AREA CONSTRUCTION. IF THE IN-PLACE INFILTRATION RATE IS OUTSIDE OF THE ALLOWABLE RANGE, THE CONTRACTOR SHALL CORRECT THE RATE BY WHATEVER MEANS ARE NECESSARY AT NO ADDITIONAL COST TO THE OWNER. A COPY OF THE TEST RESULTS SHALL BE PROVIDED TO THE ENGINEER.
 - CONTRACTOR SHALL PROVIDE A COPY OF THE PURCHASE RECEIPTS FOR ALL PIPE AND MEDIA INSTALLED AS PART OF THE BIORETENTION AREA. THE RECEIPTS SHOULD IDENTIFY THE ASTM SPECIFICATION.
 - AVOID OVER-COMPACTION BY ALLOWING TIME FOR NATURAL COMPACTION AND SETTLEMENT. NO ADDITIONAL MANUAL COMPACTION OF SOIL IS NECESSARY. ACCOMMODATE NATURAL SETTLEMENT TO PROPER FIT WITH SOIL PROVIDER FOR NATURAL

Qty	Sym	Botanic Name	Common Name	Installation Size	Spacing	Coverage (@ 5 years)	Total Coverage
TREES/SHRUBS							
4	TD	Taxodium distichum	Bald Cypress	6-7' ht	as shown	8' dia (50.3 sf)	201.2 sf
14	IL	Ilex verticillata	Winterberry	3 gal.	4'-5' o.c.	6' dia (28.3 sf)	424.5 sf
15	IV	Itea virginica	Virginia Sweetspire	3 gal.	4'-5' o.c.	4' dia (12.5 sf)	162.5 sf
GRASSES/PERENNIALS							
93	AS	Asclepias incarnata	Milkweed	1 gal.	2' o.c.	2' dia (3.1 sf)	189.1 sf
44	BA	Baptisia australis	Blue False Indigo	1 gal.	3' o.c.	3' dia (7.1 sf)	177.5 sf
116	EP	Echinacea purpurea	Purple Coneflower	1 gal.	2' o.c.	2' dia (3.1 sf)	201.5 sf
41	HH	Helopsis helianthoides	False Sunflower	1 gal.	3' o.c.	3' dia (7.1 sf)	177.1 sf
10	LC	Lobelia cardinalis	Cardinal Flower	1 gal.	2' o.c.	2' dia (3.1 sf)	176.7 sf
106	PV	Panicum virgatum	Switch Grass	3 gal.	3' o.c.	3' dia (7.1 sf)	333.7 sf
108	RH	Rudbeckia hirta	Blackeyed Susan	1 gal.	2' o.c.	2' dia (3.1 sf)	235.6sf
152	SR	Salidago rugosa	Goldenrod	1 gal.	2' o.c.	2' dia (3.1 sf)	248.0 sf
37	SN	Sorghastrum nutans	Indiangrass	1 gal.	2' o.c.	2' dia (3.1 sf)	83.7 sf

NOTE: CONTRACTOR SHALL REFER TO CD-1 FOR LANDSCAPE NOTES

TOTAL BIO-RETENTION AREA: 5,639 SF
 PROPOSED PLANT COVERAGE: 2,611 SF (46% of bio-retention area)
 TREE / SHRUBS = 786.1 SF (30% of proposed coverage)
 HERBACEOUS = 1,822.9 SF (70% of proposed coverage)

NOTE: IF A MINIMUM COVERAGE OF 75 PERCENT IS NOT ACHIEVED IN THE PLANTED BIORETENTION AREA AFTER THE SECOND GROWING SEASON, SUPPLEMENTAL PLANTING SHOULD BE COMPLETED. A ONE-YEAR, FULLY TRANSFERABLE WARRANTY WILL BE PROVIDED ON THE BIORETENTION PLANTINGS.

Legend

AS-BUILT DRAWING	Description	Quantity	Unit
CONTRACTOR TO PROVIDE AND MAINTAIN THE BIORETENTION AREA FOR THE LIFE OF THE PROJECT. CONTRACTOR SHALL MAINTAIN THE BIORETENTION AREA TO THE SATISFACTION OF THE OWNER AND SHALL HAVE A MINIMUM PIPE DRAINAGE RATE OF 1 IN/HR. CONTRACTOR SHALL PROVIDE A COPY OF THE PURCHASE RECEIPTS FOR ALL PIPE AND MEDIA INSTALLED AS PART OF THE BIORETENTION AREA. THE RECEIPTS SHOULD IDENTIFY THE ASTM SPECIFICATION.	Bio Retention Area: 1 (Triple Shredded Hardwood Mulch)	13,477	sf
CONTRACTOR SHALL PROVIDE A COPY OF THE PURCHASE RECEIPTS FOR ALL PIPE AND MEDIA INSTALLED AS PART OF THE BIORETENTION AREA. THE RECEIPTS SHOULD IDENTIFY THE ASTM SPECIFICATION.	Bio Retention Area: 2 (Triple Shredded Hardwood Mulch)	5,614	sf



111 West Main Street
Durham, N.C. 27701
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www.cjtpa.com

NC BOARD OF EXAMINERS FOR ENGINEERS AND SURVEYORS LIC # C-1209
NC BOARD OF LANDSCAPE ARCHITECTS LIC # C-104



Project
1700 HILLDALE ROAD
Durham County, North Carolina

Owner:
Hilldale Partners LLC
1201 Edwards Mill Rd
Suite 300
Raleigh, NC 27607

PINS:
0812-08-08-2988, 0812-08-09-5003, 0812-08-08-1981, 0812-08-17-8525, 0812-08-08-1780, 0812-08-08-1674, 0812-08-08-1577, 0812-08-08-1571, 0812-08-08-5616, 0812-08-08-1464, 0812-08-08-1365, 0812-08-08-1256, 0812-08-08-4206

Job Number 1967
Drawn ED, MPM, KMB
Checked JSA, FBR
Date 04/28/2022
Revisions

**FINAL DESIGN
NOT RELEASED FOR
CONSTRUCTION**

Sheet Title

**BIORETENTION
PLANTING PLAN**

Sheet Number

CD-7.1

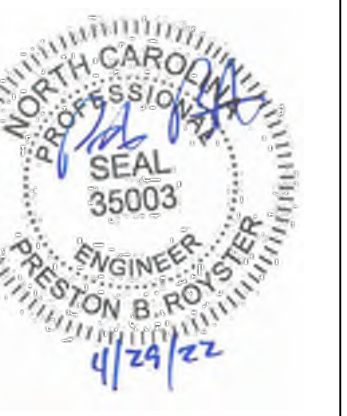
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 0812-08-98-5616
 0812-08-98-1464
 0812-08-98-1365
 0812-08-98-1256
 0812-08-98-4296



111 West Main Street
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 www.cjtpa.com

NC BOARD OF EXAMINERS FOR
 ENGINEERS AND SURVEYORS
 LIC # C-1209

NC BOARD OF
 LANDSCAPE ARCHITECTS
 LIC # C-104



Project
1700 HILLDALE ROAD
 Durham County,
 North Carolina

Owner:
 Hilldale Partners LLC
 1201 Edwards Mill Rd
 Suite 300
 Raleigh, NC 27607

PIN:
 0812-08-98-2988, 0812-08-99-5003,
 0812-08-98-1881, 0812-08-17-8525,
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Job Number 1967

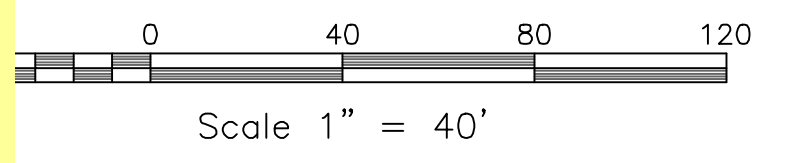
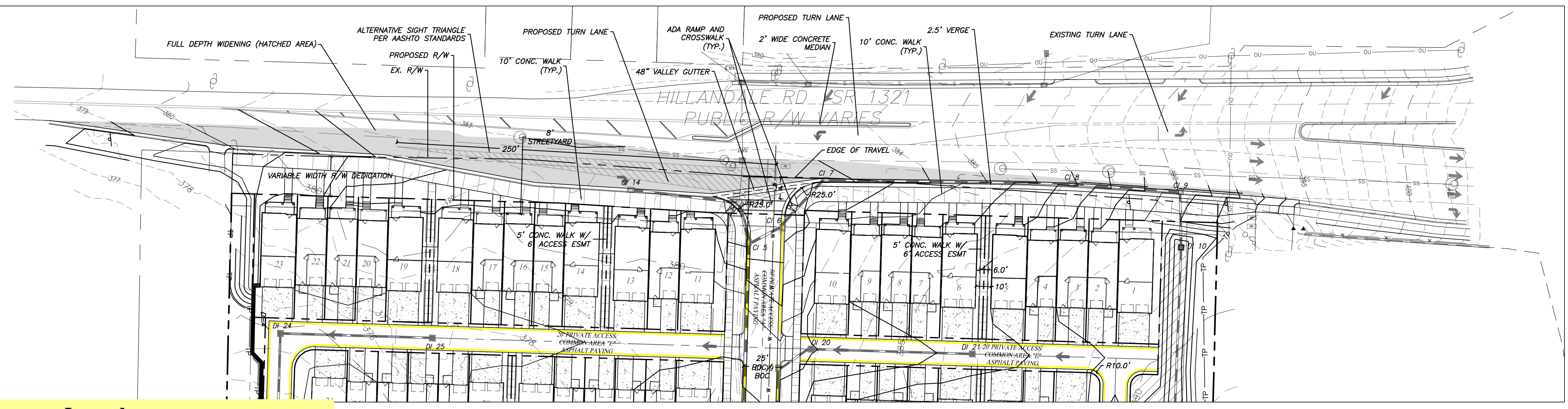
Drawn ED, MPM, KMB
 Checked JSA, PBR
 Date 04/28/2022
 Revisions

FINAL DESIGN
 NOT RELEASED FOR
 CONSTRUCTION

Sheet Title
HILLDALE ROAD WIDENING PLAN

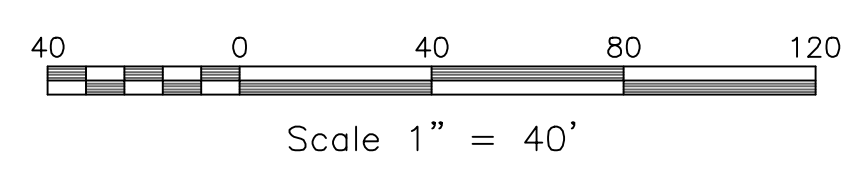
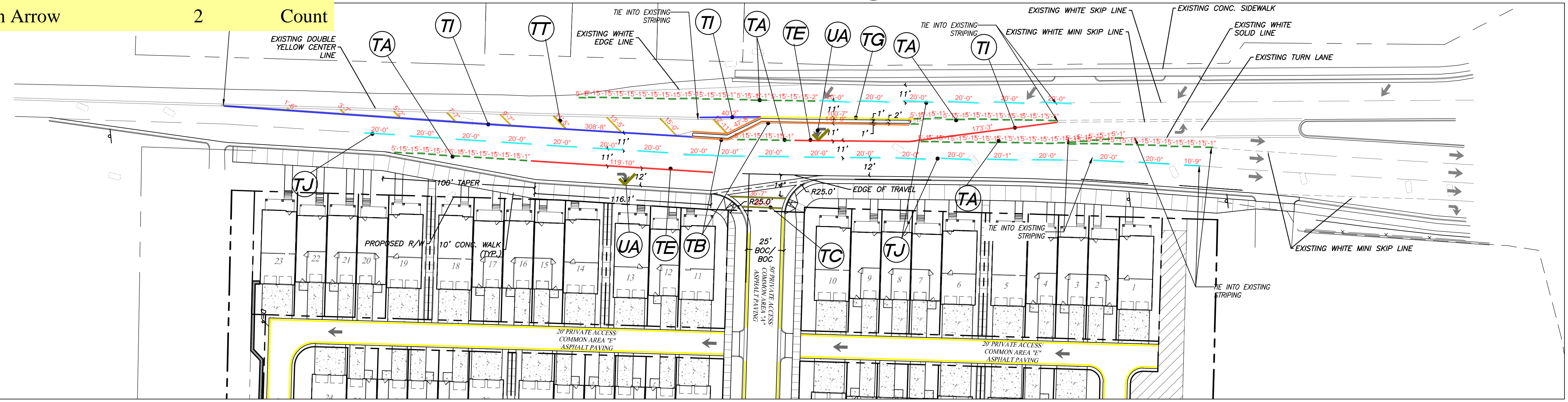
Sheet Number

CD-9.0



Description	Quantity	Unit
TA: 4" White Mini-Skip Stripping	424.75	ft
TB: 4" White Edge Line (Solid)	193.44	ft
TC: 8" White Crosswalk	62.99	ft
TE: 4" White Turn Lane Line (Solid)	293.07	ft
TG: 4" Yellow Edge Line (Solid)	100.61	ft
TI: 4" Yellow Double Center Line	348.77	ft
TJ: White Skip Line Stripping	491.41	ft
TT: Yellow Diagonal Line	80.04	ft
UA: Left Turn Arrow	2	Count

- PAVEMENT MARKING SYMBOL - 90 MIL
- TA 4" WHITE MINI-SKIP (3' STRIPE-9' SKIP)
 - TC 8" WHITE CROSSWALK LINE (120 MIL)
 - TE 4" WHITE TURN-LANE LINE (SOLID)
 - TB 4" WHITE EDGE LINE (SOLID)
 - TI 4" YELLOW DOUBLE CENTER LINE
 - TG 4" YELLOW EDGE LINE (SOLID)
 - UA LEFT TURN ARROW
- PAVEMENT MARKING SYMBOL - 90 MIL
- TJ WHITE SKIP LINE (10' STRIPE-30' SKIP)
 - TR 24" STRIPING - 120 MIL
 - TR WHITE STOP BAR
 - TT 12" THERMOPLASTIC, 0.12" THK
 - TT YELLOW DIAGONAL LINE
- 4 STRIPING LEGEND**
not to scale
- NOTE:
 1. ALL PAVEMENT MARKING IN THE PUBLIC RIGHT-OF-WAY SHALL BE THERMOPLASTIC.
 2. LIGHT GRIND TO REMOVE ALL EXISTING CONFLICTING MARKINGS.



1/CD-9.0
HILLDALE ROAD STRIPING PLAN
 SCALE: 1"=40'

CITY OF DURHAM
 PUBLIC WORKS DEPARTMENT
 APPROVED

ENGINEERING _____ DATE _____
 STORM WATER _____ DATE _____
 TRANSPORTATION _____ DATE _____
 WATER MANAGEMENT _____ DATE _____