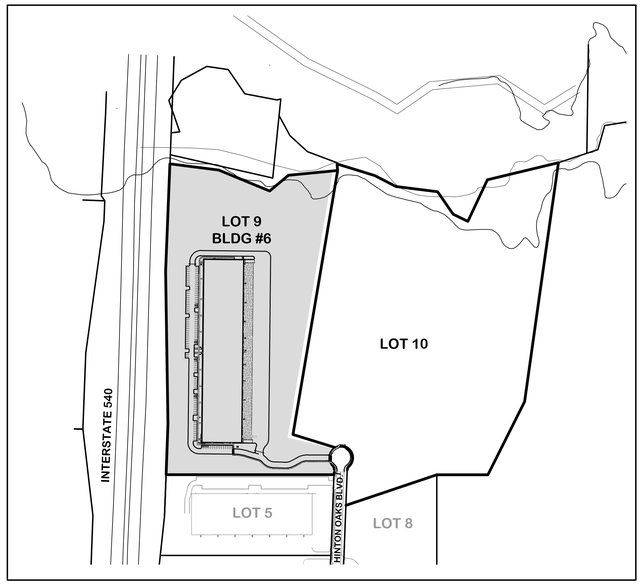
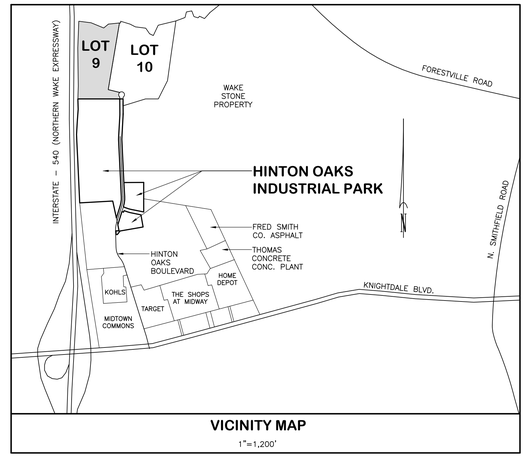
CONSTRUCTION DRAWINGS FOR: HINTON OAKS INDUSTRIAL PARK

LOT 9

HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

TOWN OF KNIGHTDALE PROJECT # ZMA-17-22
ORDINANCE #23-02-15-003





VICINITY MAP
1"=1,200'

STORMWATER COMPLIANCE NOTE

THE SITE WILL INCORPORATE A WET DETENTION POND, DESIGNED TO TREAT THE RUNOFF TO MEET TOWN OF KNIGHTDALE STORMWATER CONTROL REQUIREMENTS.

GENERAL NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE, THE CITY OF RALEIGH (FOR PUBLIC UTILITIES) AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXIST. UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. BOUNDARY AND SURVEY INFORMATION ON THESE PLANS IS FROM A SURVEY BY JONES SURVEYING AND CONSULTING, PLLC. TOPOGRAPHY IS FROM LIDAR, AND IS NOT FIELD SURVEYED.
5. ALL CONSTRUCTION SHALL CONFORM TO NORTH CAROLINA STATE BUILDING AND HANDICAPPED ACCESSIBILITY CODE AND A.D.A. STANDARDS
6. WITHIN THE SIGHT TRIANGLES SHOWN ON THIS PLAN, NO OBSTRUCTION BETWEEN TWO (2) FEET AND EIGHT (8) FEET IN HEIGHT ABOVE THE CURB LINE ELEVATION OR THE NEAREST TRAVELED WAY, IF NO CURBING EXISTS.
7. ESTIMATED PROJECT COMPLETION DATE IS MARCH 2025
8. ON SITE FENCES & GATES SHALL NOT EXCEED SIX FEET (6') IN THE FRONT YARD AND EIGHT FEET (8) IN THE SIDE AND REAR YARDS
9. OUTDOOR STORAGE OF MATERIALS IS PROHIBITED.
10. THE TOWN OF KNIGHTDALE HAS DETERMINED THAT THIS PROJECT MEETS THE REQUIREMENTS FOR THE WATER ALLOCATION POLICY.
11. THIS PROJECT IS PART OF THE "KNIGHTDALE INDUSTRIAL PARK UTILITY ALLOCATION AND DEVELOPMENT AGREEMENT" (BM015866, PG01153-01203 & BM017641, PG00587-00595)
12. FUTURE PARKING WILL REQUIRE A SITE PLAN REVISION.

ADDITIONAL USE STANDARDS

USE	CONDITION
WHOLESALING AND DISTRIBUTION	ALL VEHICLE STORAGE AREAS SHALL BE ENCLOSED BY AN OPAQUE FENCE OR WALL, RESTRICTED TO THE REAR YARD, AND SCREENED FROM OFF-SITE VIEW OF A PUBLIC RIGHT-OF-WAY BY A TYPE-A BUFFER YARD.
	NO OUTDOOR PUBLIC ADDRESS SYSTEM SHALL BE PERMITTED WHICH CAN BE HEARD BEYOND THE BOUNDARIES OF THE PROPERTY.
STORAGE-WAREHOUSE, INDOOR STORAGE	OUTDOOR STORAGE IS NOT PERMITTED.
AGRIBUSINESS	ACCESSORY BUILDINGS PERMITTED UNDER SECTION 5.10 AND AREAS USED FOR SALES, STORAGE, THE KEEPING OF MATERIALS OR THE CARE OF ANIMALS SHALL NOT BE LOCATED WITHIN A 200-FOOT RADIUS OF THE FOOTPRINT OF ANY PRE-EXISTING ADJACENT RESIDENTIAL DWELLING (OTHER THAN THE OWNER'S).
	ACCESSORY BUILDINGS PERMITTED UNDER SECTION 5.10 AND AREAS USED FOR STORAGE OR KEEPING OF MATERIALS AND/OR ANIMALS SHALL HAVE ADEQUATE MEANS OF VENTILATION AND SHALL NOT CREATE OBJECTIONABLE FUMES, ODOR OR DUST TO THE SURROUNDING AREA.
LABORATORY-MEDICAL, ANALYTICAL, RESEARCH & DEVELOPMENT	NONE
MANUFACTURING, LIGHT	ALL MATERIALS OR EQUIPMENT SHALL BE STORED WITHIN AN ENCLOSED BUILDING, OR STORED WITHIN AN OUTDOOR STORAGE AREA ENCLOSED BY AN OPAQUE FENCE OR WALL THAT MEETS THE REQUIREMENTS OF SECTION 7.6 AND IS RESTRICTED TO THE REAR YARD.
	ANY OPERATION WHICH RESULTS IN THE CREATION OF NOXIOUS VIBRATIONS, ODORS, DUST, GLARE OR SOUND IS PROHIBITED.
MANUFACTURING, NEIGHBORHOOD	ALL MATERIALS OR EQUIPMENT SHALL BE STORED WITHIN AN ENCLOSED BUILDING
	ANY OPERATION WHICH RESULTS IN THE CREATION OF NOXIOUS VIBRATIONS, ODORS, DUST, GLARE OR SOUND IS PROHIBITED.
MANUFACTURING, HEAVY	NONE
MEDIA PRODUCTION	NONE
RESEARCH AND DEVELOPMENT	ALL MATERIALS OR EQUIPMENT SHALL BE STORED WITHIN AN ENCLOSED BUILDING, OR STORED WITHIN AN OUTDOOR STORAGE AREA ENCLOSED BY AN OPAQUE FENCE OR WALL THAT MEETS THE REQUIREMENTS OF SECTION 7.6 AND IS RESTRICTED TO THE REAR YARD.
	ANY OPERATION WHICH RESULTS IN THE CREATION OF NOXIOUS VIBRATIONS, ODORS, DUST, GLARE OR SOUND IS PROHIBITED.

TREE COVER AREA CALCULATIONS

REQUIRED TREE COVER AREA EQUALS THE PERIMETER OF THE DEVELOPMENT IN FEET MULTIPLIED BY TWENTY (20).

REQUIRED TREE COVER AREA =5,021 LF X 20 = 100,420 SF = 2.31 AC

PROVIDED TREE COVER AREA = 5.11 ACRES

PUBLIC IMPROVEMENT QUANTITY SUMMARY

LOT NUMBER BY PHASE	N/A
NUMBER OF UNITS	N/A
LIVABLE BUILDINGS	0
OPEN SPACE	NO
NUMBER OF OPEN SPACE LOTS	NO
PUBLIC WATER (LF)	8" DIP = 40 LF 6" DIP = 90 LF TOTAL = 130 LF
PUBLIC SEWER (LF)	32 LF
PUBLIC STREET (LF) - FULL	62 LF
PUBLIC CURB & GUTTER	295 LF
PUBLIC SIDEWALK (LF)	110 LF
STREET SIGNS	0
WATER SERVICE STUBS	2
SEWER SERVICE STUBS	2
TREE PROTECTION FENCE	2,033 LF

DRAWING INDEX

SITE 1	COVER SHEET
SITE 2	EXISTING CONDITIONS PLAN
SITE 3	SITE PLAN SHEET 1 OF 2
SITE 4	SITE PLAN SHEET 2 OF 2
SITE 5	GRADING AND DRAINAGE PLAN
SITE 6	TEMPORARY ACCESS ROAD PLAN AND PROFILE
SITE 7	UTILITY PLAN
SITE 8	FIRE HOSE COVERAGE AND HINTON OAKS BLVD. PLAN AND PROFILE
SITE 9	STAGE 1 EROSION CONTROL PLAN
SITE 9A	STAGE 2 EROSION CONTROL PLAN
SITE 10	STAGE 3 EROSION CONTROL PLAN
SITE 10A	EROSION CONTROL NOTES
LP1.1	LANDSCAPE PLAN
LP9.1	LANDSCAPE DETAILS
SITE 11	SCM DETAIL
SITE 12	DETAILS
SITE 13	DETAILS
SITE 14	DETAILS
SITE 15	DETAILS
SITE 16	DETAILS
L-1	LIGHTING PLAN
A101	FLOOR PLAN
A201	ELEVATIONS
A551	STAIR DETAILS
A553	RAMP DETAILS
A554	RAMP DETAILS
ES1	ELECTRICAL SITE PHOTOMETRIC PLAN

SITE DATA TABLE

1.	PROJECT NAME:	HINTON OAKS INDUSTRIAL PARK - LOT 9
2.	STREET ADDRESS:	0 HINTON OAKS BOULEVARD KNIGHTDALE, NORTH CAROLINA
3.	SITE AREA:	LOT 9 = 24.61 AC
4.	ZONING:	MI-MANUFACTURING AND INDUSTRIAL CONDITIONAL DISTRICT W/SHOD OVERLAY
5.	PARCEL IDENTIFICATION NUMBER:	1745407575
6.	ACREAGE IN PARKS:	0 ACRES
7.	ACREAGE IN NON-RESIDENTIAL USES:	24.61 AC.
8.	TOTAL NUMBER OF HOUSING UNITS:	0 UNITS
9.	REQUIRED/PROVIDED RECREATIONAL OPEN SPACE:	0 ACRES
10.	TOWNSHIP/COUNTY/STATE:	ST. MATTHEWS TOWNSHIP, WAKE COUNTY, NORTH CAROLINA
11.	IMPERVIOUS SURFACE AREA:	LOT #9 = 9.2 AC
12.	BUILDING USE & PARKING SUMMARY	BUILDING #6 175,000 SF WAREHOUSE + 5,000 SF OFFICE = 180,000 SF TOTAL MAXIMUM PARKING PERMITTED (WAREHOUSE) = 1 SP /1,000 SF = (1/1,000) X 175,000 = 175 SPACES MAXIMUM ALLOWED MAXIMUM PARKING PERMITTED (OFFICE) = 4 SP/1,000 SF = (4/1,000) X 5,000 = 20 SPACES MAXIMUM ALLOWED TOTAL MAXIMUM SPACES PERMITTED = 175 + 20 = 195 SPACES MINIMUM PARKING REQUIRED = 1/2 MAXIMUM = 1/2 X 195 = 98 SPACES REQUIRED 137 SPACES PROVIDED (INCLUDES 4 STANDARD H/C SPACES AND 4 VAN ACCESSIBLE H/C SPACES) ELECTRIC VEHICLE (EV) PARKING REQUIRED EV PARKING SPACES = 1 PER 40 SPACES (MINIMUM = 2, MAXIMUM = 15) BUILDING #6: EV SPACES REQUIRED = 137/40 = 4 SPACES
14.	OWNER NAME/ADDRESS:	WAKE STONE CORPORATION P.O. BOX 190 KNIGHTDALE, NORTH CAROLINA 27545 919/266-1100

DISTURBED AREA = 18.0 ACRES

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # W-4047
Authorization to Construct _____
Date _____

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # S-5237
Authorization to Construct _____
Date _____

ATTENTION CONTRACTORS
The ***Construction Contractor*** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for ***contacting*** the ***Public Utilities Department*** at ***(919) 996-4540*** at least ***twenty four hours*** prior to beginning any of their construction.

Failure to notify both ***City Departments*** in advance of beginning construction, will result in the issuance of ***monetary fines***, and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for ***Inspection***, ***Install a Downstream Plug***, have ***Permitted Plans*** on the ***Jobsite***, or any other ***Violation*** of ***City of Raleigh Standards*** will result in a ***Fine and Possible Exclusion*** from future work in the ***City of Raleigh***.

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval _____ Cydney S. Terry
Digitally signed by Cydney S. Terry
DN: C=US, E=cydney.terry@raleighnc.gov, O=Public Utilities, CN=Cydney S. Terry
Date: 2023.11.28 16:36:40 -05'00'
Raleigh Water Review Office

EROSION AND SEDIMENT CONTROL
APPROVED PLAN
DATE: _____
PERMIT NO. SEC-____-____
Town of Knightdale Public Works
Sedimentation & Erosion Control
(919) 217-2250

KNIGHTDALE
EFFECTIVE: 05/16/2022

Town of Knightdale Construction Inspector Signature

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.
By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.
By: Kevin Lewis Date: _____
Administrator

b. Professional Design Engineer Certification. These improvements shall be constructed in accordance with the following drawings and with the Standard Specifications of the Town of Knightdale.
I, _____ PE, certify that the Standard Specifications of the Town of Knightdale have been thoroughly checked and found to be applicable to this project. All exceptions to the applicable Town standards have been previously approved by the Town of Knightdale and said exceptions are shown on Sheet(s) _____ of these drawings.
Seal By: _____,
PE Date: _____

a. Town Approved Standards Shall Control In the event of a conflict or inconsistency between these construction drawings and the Town of Knightdale's Approved Standards for this project, the Approved Standards shall control. Town of Knightdale Approved Standards shall mean all development documents necessary for approval for the Property including, but not limited to, any special use permit, subdivision plan, site plan, subdivision plat(s), phasing schedule, Development Agreement, Utility Allocation Agreement, Annexation Agreement, the Town of Knightdale Standard Specification and Details Manual and applicable provisions of the North Carolina State Building Code.

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHNEIDER
10-31-23

LOT 9
HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1 19 APR 2023 PER TOWN COMMENTS
2 05 JUNE 2023 PER TOWN COMMENTS
3 13 JULY 2023 PER TOWN COMMENTS
4 31 DEC 2023 WALL #5 REVISION

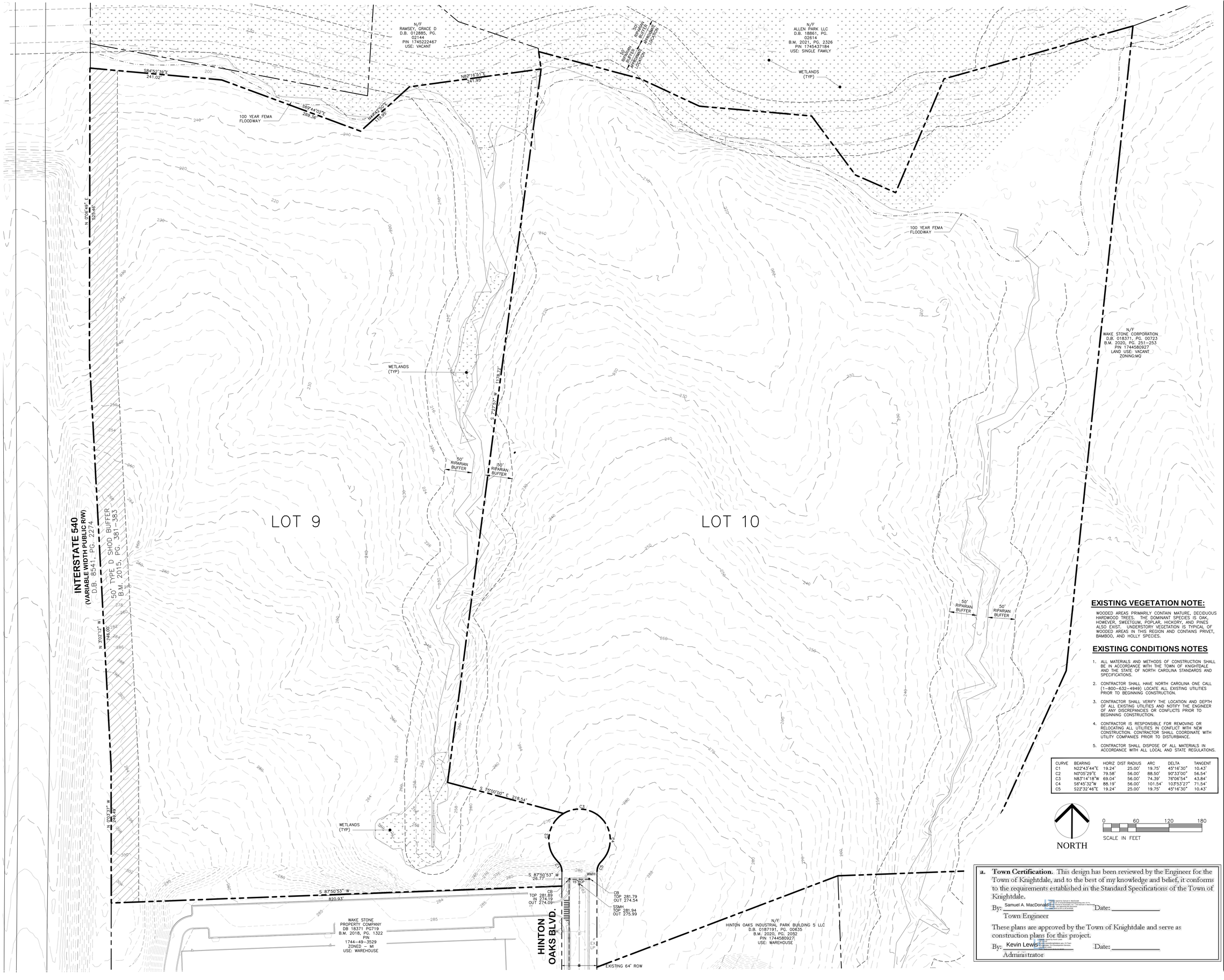
DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

COVER

DWG. NO. **SITE 1**

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EXISTING VEGETATION NOTE:

WOODED AREAS PRIMARILY CONTAIN MATURE, DECIDUOUS HARDWOOD TREES. THE DOMINANT SPECIES IS OAK, HOWEVER, SWEETGUM, POPLAR, HICKORY, AND PINES ALSO EXIST. UNDERSTORY VEGETATION IS TYPICAL OF WOODED AREAS IN THIS REGION AND CONTAINS PRIVET, BAMBOO, AND HOLLY SPECIES.

EXISTING CONDITIONS NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL HAVE NORTH CAROLINA ONE CALL (1-800-632-4949) LOCATE ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
3. CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO BEGINNING CONSTRUCTION.
4. CONTRACTOR IS RESPONSIBLE FOR REMOVING OR RELOCATING ALL UTILITIES IN CONFLICT WITH NEW CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES PRIOR TO DISTURBANCE.
5. CONTRACTOR SHALL DISPOSE OF ALL MATERIALS IN ACCORDANCE WITH ALL LOCAL AND STATE REGULATIONS.

CURVE	BEARING	HORIZ DIST	RADIUS	ARC	DELTA	TANGENT
C1	N22°43'44"E	19.24'	25.00'	19.75'	45°16'30"	10.43'
C2	N0°05'29"E	79.58'	56.00'	88.50'	90°33'00"	56.54'
C3	N83°14'18"W	69.04'	56.00'	74.39'	76°06'54"	43.84'
C4	S6°45'32"W	88.19'	56.00'	101.54'	103°53'27"	71.54'
C5	S22°32'46"E	19.24'	25.00'	19.75'	45°16'30"	10.43'

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Administrator

PLD

PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHMIDT

04-19-23

LOT 9 HINTON OAKS INDUSTRIAL PARK

0 HINTON OAKS BOULEVARD KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1 19 APR 2023
PER TOWN COMMENTS

DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

EXISTING CONDITIONS

DWG. NO. **SITE 2**

F:\Projects\WSHOIPB6L9\Drawings\Site\WSHOIPB6L9_sitebase.dwg – 2-EXIST COND. Apr 19, '23 – 3:57pm

MATCH LINE
SEE NEXT SHEET

MATCH LINE
SEE NEXT SHEET

100 YEAR FEMA FLOODWAY

SCM WET POND

20' SCM ACCESS & MAINTENANCE EASEMENT

LIGHT POLE (TYP)

ELECTRIC TRANSFORMER

WALL #4 SEGMENTAL RETAINING WALL W/FENCE

NEW CONCRETE RAMP. REFER TO ARCHITECTURAL PLANS FOR DETAILS (TYP.)

WALL #3 SEGMENTAL RETAINING WALL W/FENCE

5.0' NEW 5'X7' WIDE CONCRETE PAD AT EXIT (TYP.)

PUBLIC GATHERING SPACE (1 BENCH AND SHADE TREE PROVIDED). SEE "BENCH LAYOUT DETAIL" ON DETAIL SHEET (TYPICAL AS SHOWN)

SECURITY GATE, KNOX BOX PROVIDED AT EACH GATE (TYP.)

NEW 6.0' WIDE CONCRETE SIDEWALK ADJACENT TO PROPOSED PARKING SPACES (TYP.)

NEW HEAVY-DUTY ASPHALT PAVING (TYP. REFER TO PAVING LEGEND ON THIS SHEET)

NEW HEAVY-DUTY CONCRETE PAVING (REFER TO PAVING LEGEND ON THIS SHEET)

NEW STEEL STAIRS. REFER TO ARCHITECTURAL PLANS FOR DETAILS (TYP.)

NOTE: DUMPSTERS SHALL BE PROVIDED BY THE TENANTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE DEVELOPMENT AGREEMENT. ALL DUMPSTER ENCLOSURES MUST BE MADE OF A MATERIAL CONSISTENT WITH PRIMARY BUILDING.

WETLANDS (TYP)

50' RIPARIAN BUFFER

20' ZONE 2

30' ZONE 1

INTERSTATE 540
(VARIABLE WIDTH PUBLIC R/W)
D.B. 8541, PG. 2274

50' TYPE D SHAD BUFFER B.M. 2015, PG. 381-383

5,000 SF OFFICE

LOT 9
BUILDING #6
180,000 SF
FFE=263.0

LIGHT POLE (TYP.)

NEW HC PARKING SPACE (TYP.)

NEW CONCRETE WHEEL STOP (TYP.)

NEW WC RAMP (TYP.)

NEW HC PARKING SIGN (TYP.)

WALL #5 SEGMENTAL RETAINING WALL W/FENCE

NEW 6.0' WIDE CONCRETE SIDEWALK ADJACENT TO PROPOSED PARKING SPACES (TYP.)

PUBLIC GATHERING SPACE (1 BENCH AND SHADE TREE PROVIDED). SEE "BENCH LAYOUT DETAIL" ON DETAIL SHEET (TYPICAL)

4 ELECTRIC VEHICLE SPACES

NEW CONCRETE RAMP. REFER TO ARCHITECTURAL PLANS FOR DETAILS (TYP.)

ELECTRIC TRANSFORMER

WALL #1 SEGMENTAL RETAINING WALL W/FENCE

"NO PARKING" LETTERING AND STRIPING PER TOK DETAIL 3.31 THIS SHEET.

NEW 10' WIDE THERMOPLASTIC HIGH VISIBILITY CROSSWALK PER NCDOT STD. DETAIL 1205.07

NEW WC RAMP PER CITY OF RALEIGH DETAIL T-20.01.5, TYPE R-2A

NEW 30"X30" R1-1 STOP SIGN AND STOP BAR

5.0' CONCRETE SIDEWALK

SECURITY GATE, KNOX BOX PROVIDED AT EACH GATE (TYP.)

20' SCM ACCESS & MAINTENANCE EASEMENT

10' TYPE "A" BUFFER

"NO PARKING" LETTERING AND STRIPING PER TOK DETAIL 3.31 THIS SHEET.

DASHED LINE DENOTES ACCESSIBLE ROUTE TO PUBLIC RIGHT-OF-WAY

WETLANDS

WALL #2 SEGMENTAL RETAINING WALL W/FENCE

DEAD END BARRICADE PER TOK DETAIL 3.18

NEW WC RAMP PER CITY OF RALEIGH DETAIL T-20.01.5, TYPE R-2A

NEW 10' WIDE THERMOPLASTIC HIGH VISIBILITY CROSSWALK PER NCDOT STD. DETAIL 1205.07

NO PARKING SIGN (TYPICAL- 9 TOTAL)

10' TRANSITION FROM 30" TO 24" CURB & GUTTER (TYP BOTH SIDES)

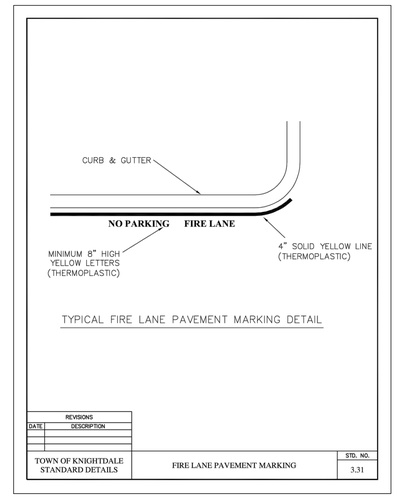
NEW 30"X30" R1-1 STOP SIGN AND STOP BAR

NEW WC RAMP PER CITY OF RALEIGH DETAIL T-20.01.5, TYPE R-2

TIE NEW 5' CONCRETE SIDEWALK TO EXISTING

NEW 30" STANDARD CURB AND GUTTER

HINTON OAKS BLVD. (64' PUBLIC R/W)



TYPICAL FIRE LANE PAVEMENT MARKING DETAIL

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	FIRE LANE PAVEMENT MARKING	STD. NO. 3.31

PAVING LEGEND

- STANDARD DUTY ASPHALT PAVING: 2" SF9.5A ON 6" ABC
- HEAVY DUTY ASPHALT PAVING: 1" SF9.5A ON 2" S9.5B ON 8" ABC
- HEAVY DUTY CONCRETE: 6" THICK 4,000 PSI CONCRETE W/6x6 $^{W_0}/_{W_0}$ W.W.F. ON 4" ABC
- CONCRETE SIDEWALK: 4" THICK 3,000 PSI CONCRETE

LEGEND

- TREE COVER AREA
- WETLANDS

SITE PLAN NOTES

1. ALL DIMENSIONS ARE TO BACK OF CURB, FACE OF TURNED DOWN WALK, EDGE OF PAVING, BUILDING WALL FACE OR PROPERTY LINE.
2. PARKING SPACES ARE 9.0' WIDE MINIMUM EXCEPT HANDICAP SPACES WHICH ARE 8.0' WIDE MINIMUM WITH 5.0' AISLES (8.0' AISLES – VAN).
3. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF THE BUILDING.
4. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DIMENSIONAL CONFLICTS PRIOR TO THE BEGINNING OF CONSTRUCTION.
5. ALL CURB AND GUTTER ONSITE SHALL BE 24" WIDE. ALL CURB AND GUTTER IN THE ADJACENT STREETS SHALL BE 30" WIDE. PROVIDE 10' TRANSITION ON-SITE.
6. CONTRACTOR TO PROVIDE H/C RAMPS IN SIDEWALKS AT ALL DRIVEWAY CROSSINGS.
7. ALL ONSITE PAVEMENT MARKINGS SHALL BE THERMOPLASTIC WITH THE EXCEPTION OF PARKING STALL STRIPES WHICH MAY BE PAINTED.
8. AT INTERSECTIONS WITH WHEEL CHAIR RAMPS, THE CURB SHALL BE PLACED SUCH THAT THE CROSS SLOPE OF THE WHEEL CHAIR RAMP DOES NOT EXCEED 2%.
9. DUMPSTERS SHALL BE PROVIDED BY THE TENANTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE DEVELOPMENT AGREEMENT. ALL DUMPSTER ENCLOSURES MUST BE MADE OF A MATERIAL CONSISTENT WITH PRIMARY BUILDING.
10. CHAINLINK FENCING IS ONLY PERMITTED IN THE REAR YARD. FENCING CANNOT EXCEED 6' IN THE FRONT YARD AND 9' IN THE SIDE / REAR YARDS.
11. ZONE ONE OF THE NEUSE RIVER BUFFER SHALL BE A 30' UNDISTURBED FORESTED BUFFER AREA. ZONE TWO OF THE NEUSE RIVER BUFFER SHALL BE A 20' MANAGED VEGETATION BUFFER AREA.

NORTH

0 50 100 150
SCALE IN FEET : 1"=50'

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHMIDT
10-31-23

LOT 9
HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1. 19 APR 2023 PER TOWN COMMENTS
2. 05 JUNE 2023 PER TOWN COMMENTS
3. 13 JULY 2023 PER TOWN COMMENTS
4. 31 DEC 2023 WALL #5 REVISION

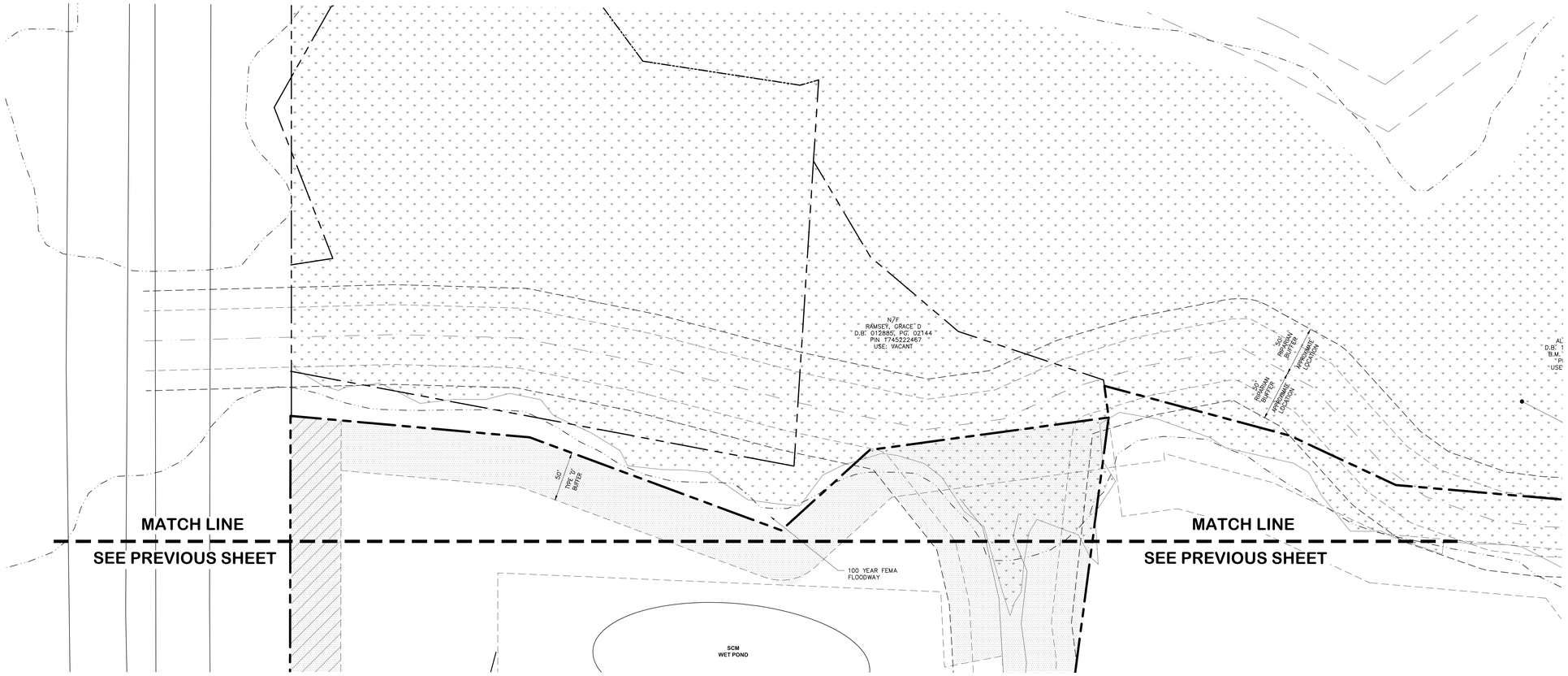
DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

SITE PLAN

DWG. NO. **SITE 3**

F:\Projects\WSHOIPB6L9\Drawings\Site\WSHOIPB6L9_siteBase.dwg - 3-4-3-SITE Oct 31, '23 - 9:50am



LEGEND

- TREE COVER AREA
- WETLANDS

NORTH

0 50 100 150

SCALE IN FEET : 1"=50'

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHMIDT

04-19-23

LOT 9
HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1 19 APR 2023
PER TOWN COMMENTS

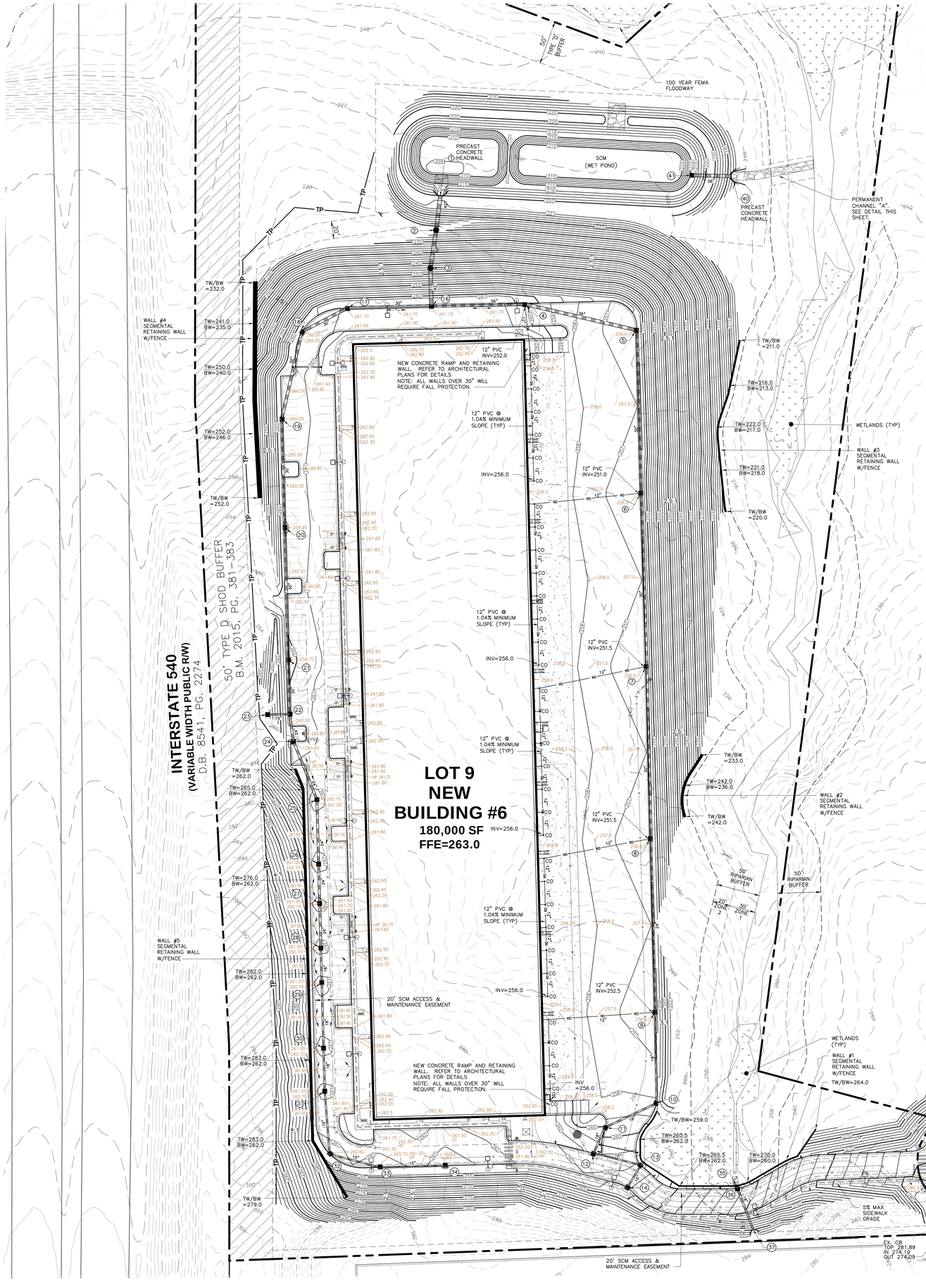
DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

SITE PLAN

DWG. NO. **SITE 4**

F:\Projects\WSHOIPB6L9\Drawings\Site\WSHOIPB6L9_sitebase.dwg - 3-4-3-SITE Apr 19, '23 - 3:58pm



PIPE SCHEDULE

UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	UPSTREAM INVERT	DOWNSTREAM INVERT	SIZE (IN)	LENGTH (FT)	SLOPE	MATERIAL
2	1	216.20	216.00	42	40	0.50%	CLASS III RCP/PLASTIC
3	2	220.50	216.30	42	45	9.43%	CLASS III RCP/PLASTIC
4	16	246.70	246.00	36	108	0.65%	CLASS III RCP/PLASTIC
5	4	247.50	246.80	36	133	0.52%	CLASS III RCP/PLASTIC
6	5	248.60	247.60	30	189	0.53%	CLASS III RCP/PLASTIC
7	6	249.80	248.70	30	201	0.55%	CLASS III RCP/PLASTIC
8	7	251.00	249.90	30	199	0.55%	CLASS III RCP/PLASTIC
9	8	252.20	251.10	24	201	0.55%	CLASS III RCP/PLASTIC
10	9	252.90	252.30	18	105	0.57%	CLASS III RCP/PLASTIC
11	10	254.90	253.00	18	66	2.88%	CLASS III RCP/PLASTIC
12	11	255.90	255.00	18	32	2.78%	CLASS III RCP/PLASTIC
13	12	257.70	256.00	15	56	3.02%	CLASS III RCP/PLASTIC
14	13	258.00	257.80	15	31	0.65%	CLASS III RCP/PLASTIC
16	3	242.00	238.00	42	44	9.19%	CLASS III RCP/PLASTIC
17	16	246.50	246.00	30	97	0.51%	CLASS III RCP/PLASTIC
18	17	247.00	246.60	30	59	0.67%	CLASS III RCP/PLASTIC
19	18	247.70	247.10	30	104	0.58%	CLASS III RCP/PLASTIC
20	19	248.50	247.80	30	126	0.56%	CLASS III RCP/PLASTIC
21	20	249.40	248.60	30	153	0.52%	CLASS III RCP/PLASTIC
22	21	249.90	249.50	30	63	0.64%	CLASS III RCP/PLASTIC
23	22	252.00	251.80	15	25	0.79%	CLASS III RCP/PLASTIC
24	22	250.20	250.00	24	32	0.63%	CLASS III RCP/PLASTIC
25	24	250.70	250.30	24	73	0.55%	CLASS III RCP/PLASTIC
26	25	251.20	250.80	24	75	0.54%	CLASS III RCP/PLASTIC
27	26	251.60	251.30	24	46	0.66%	CLASS III RCP/PLASTIC
28	27	252.00	251.70	24	52	0.58%	CLASS III RCP/PLASTIC
29	28	252.40	252.10	18	40	0.75%	CLASS III RCP/PLASTIC
30	29	252.90	252.50	18	76	0.53%	CLASS III RCP/PLASTIC
31	30	253.30	253.00	18	50	0.60%	CLASS III RCP/PLASTIC
32	31	254.00	253.40	15	73	0.82%	CLASS III RCP/PLASTIC
33	32	254.50	254.10	15	61	0.66%	CLASS III RCP/PLASTIC
34	33	255.00	254.60	15	75	0.53%	CLASS III RCP/PLASTIC
36	35	260.10	260.00	18	4	2.53%	CLASS III RCP/PLASTIC
37	36	261.00	260.20	18	52	1.55%	CLASS III RCP/PLASTIC
41	40	209.80	209.50	36	46	0.66%	CLASS III RCP/PLASTIC

NOTES:

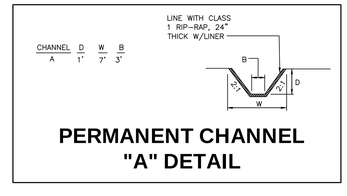
1. ALL PIPE SHALL BE CLASS III RCP OR TOWN APPROVED PLASTIC PIPE.
2. RIM ELEVATIONS ARE TO TOP OF CURB FOR CB'S, TOP OF GRATE FOR DI'S, AND ELEVATION OF OPENING FOR YI'S.
3. "CB" DESIGNATES CURB INLET PER TOK STD. NO. 5.05 1/2 AND 2/2 ON DETAIL SHEET.
4. "DI" DESIGNATES DROP INLET PER TOK STD. NO. 5.04 ON DETAIL SHEET.
5. "JB" DESIGNATES JUNCTION BOX PER NCDOT STD. DETAIL 840.31 WITH TOK STD. MANHOLE RING AND COVER PER TOK STD. NO. 5.10 ON DETAIL SHEET.
6. "HW" DESIGNATES PRECAST CONCRETE HEADWALL
7. "YI" REFERS TO YARD INLET WITH CONCRETE SLAB PER "YARD INLET WITH CONCRETE SLAB" DETAIL ON DETAIL SHEET.
8. STEPS SHALL BE PROVIDED IN ALL STRUCTURES WITH A DEPTH OF 3.0' OR GREATER. STEPS SHALL BE CONSTRUCTED USING ½ INCH DIAMETER REINFORCING STEEL ENCAPSULATED IN POLYPROPYLENE MATERIAL. STEPS SHALL BE DESIGNED AND INSTALLED TO ACCOMMODATE A VERTICAL LOAD OF NOT LESS THAN 400 POUNDS AND A HORIZONTAL PULLOUT LOAD OF AT LEAST 1,000 POUNDS. STEPS SHALL HAVE A CLEAR WIDTH OF 12 INCHES AND SPACING OF 15 INCHES. REFER TO NCDOT STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS.

STRUCTURE SCHEDULE

STRUCTURE	RIM	STRUCTURE TYPE	INV IN	INV OUT
1	N/A	HW	216.00 (42")	
2	231.00	JB	216.30 (42")	216.20 (42")
3	249.00	JB	238.00 (42")	220.50 (42")
4	260.50	CB	246.80 (36")	246.70 (36") 242.00 (42")
5	256.40	CB	247.60 (30")	247.50 (36")
6	256.40	CB	248.70 (30")	248.60 (30")
7	256.40	CB	249.90 (30")	249.80 (30")
8	256.40	CB	251.10 (24")	251.00 (30")
9	256.40	CB	252.30 (18")	252.20 (24")
10	258.60	CB	253.00 (18")	252.90 (18")
11	260.00	CB	255.00 (18")	254.90 (18")
12	261.60	CB	256.00 (15")	255.90 (18")
13	262.70	CB	257.80 (15")	257.70 (15")
14	263.30	CB		258.00 (15")
16	261.50	CB	246.00 (36") 246.00 (30")	242.00 (42")
17	261.50	CB	246.60 (30")	246.50 (30")
18	260.40	CB	247.10 (30")	247.00 (30")
19	260.40	CB	247.80 (30")	247.70 (30")
20	260.30	CB	248.60 (30")	248.50 (30")
21	260.10	CB	249.50 (30")	249.40 (30")
22	260.90	CB	250.00 (24") 251.80 (15")	249.90 (30")
23	256.00	YI		252.00 (15")
24	260.80	CB	250.30 (24")	250.20 (24")
25	260.70	DI	250.80 (24")	250.70 (24")
26	260.70	DI	251.30 (24")	251.20 (24")
27	260.70	DI	251.70 (24")	251.60 (24")
28	260.70	DI	252.10 (18")	252.00 (24")
29	260.70	DI	252.50 (18")	252.40 (18")
30	260.70	DI	253.00 (18")	252.90 (18")
31	260.70	DI	253.40 (15")	253.30 (18")
32	261.00	CB	254.10 (15")	254.00 (15")
33	261.20	CB	254.60 (15")	254.50 (15")
34	260.80	CB		255.00 (15")
35	N/A	WALL	260.00 (18")	
36	269.10	CB	260.20 (18")	260.10 (18")
37	N/A	HW		261.00 (18")
40	N/A	HW	209.50 (36")	
41	N/A	RISER		209.80 (36")

ENERGY DISSIPATER SCHEDULE

DOWNSTREAM STRUCTURE	SIZE (IN)	VELOCITY (FPS)	RIP RAP TYPE	L X W X THK
1	42	7.38	CLASS 1	18' X 12' X 24" (EXTEND TO POND BOTTOM
35	18	9.49	CLASS B	9' X 5' X 18"
40	36	7.68	CLASS B	18' X 9' X 18"



PERMANENT CHANNEL "A" DETAIL

GRADING NOTES

1. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE TOWN OF KNIGHTDALE AND THE STATE OF NORTH CAROLINA STANDARDS AND SPECIFICATIONS.
2. ALL CURB INLET, DROP INLET, MANHOLE, AND CLEAN-OUT FRAMES AND COVERS/GRATES SHALL BE PAINTED BLACK SEMI-GLOSS ENAMEL AFTER INSTALLATION.
3. ALL CLEAN-OUTS SHALL BE PROVIDED IN CAST IRON FRAME AND COVER SIMILAR TO A WATER VALVE BOX. PROVIDE HEAVY DUTY FRAME AND COVER IN PAVED AREAS.
4. AT INTERSECTIONS WITH WHEEL CHAIR RAMPS, THE CURB SHALL BE PLACED SUCH THAT THE CROSS SLOPE OF THE WHEEL CHAIR RAMP DOES NOT EXCEED 2%.
5. ZONE ONE OF THE NEUSE RIVER BUFFER SHALL BE A 30' UNDISTURBED FORESTED BUFFER AREA. ZONE TWO OF THE NEUSE RIVER BUFFER SHALL BE A 20' MANAGED VEGETATION BUFFER AREA.

NORTH

0 50 100 150

SCALE IN FEET : 1"=50'

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHNEIDER

11-21-23

LOT 9 HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1 19 APR 2023 PER TOWN COMMENTS
2 05 JUNE 2023 PER TOWN COMMENTS
3 13 JULY 2023 PER TOWN COMMENTS
4 31 DEC 2023 WALL #5 REVISION
5 21 NOV 2023 WALL #5 REVISION

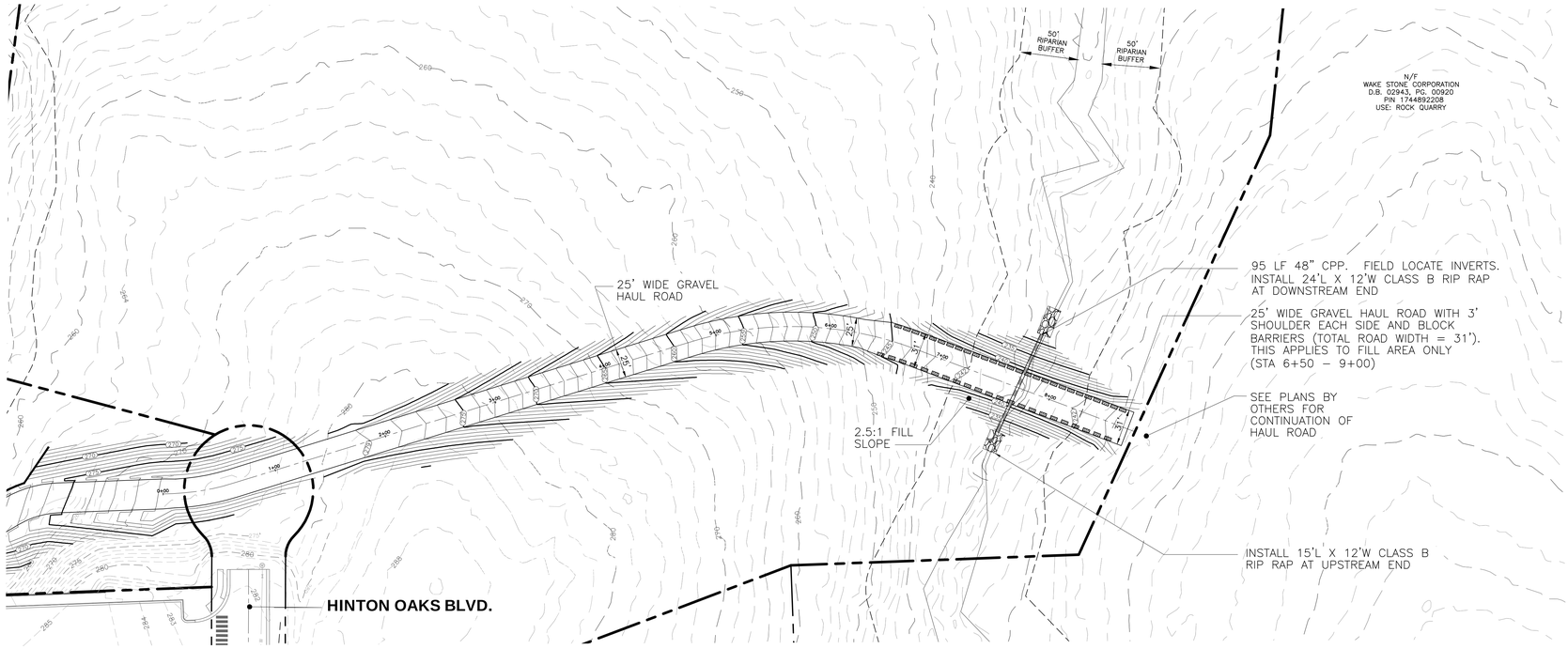
DRAWN BY: **JET**
CHECKED BY: **MLS**

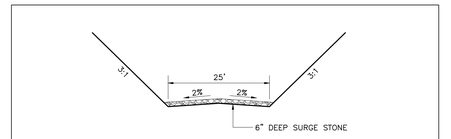
PROJECT: **WSHOIPN**

GRADING AND DRAINAGE PLAN

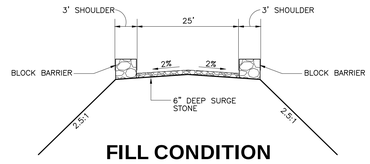
DWG. NO. **SITE 5**

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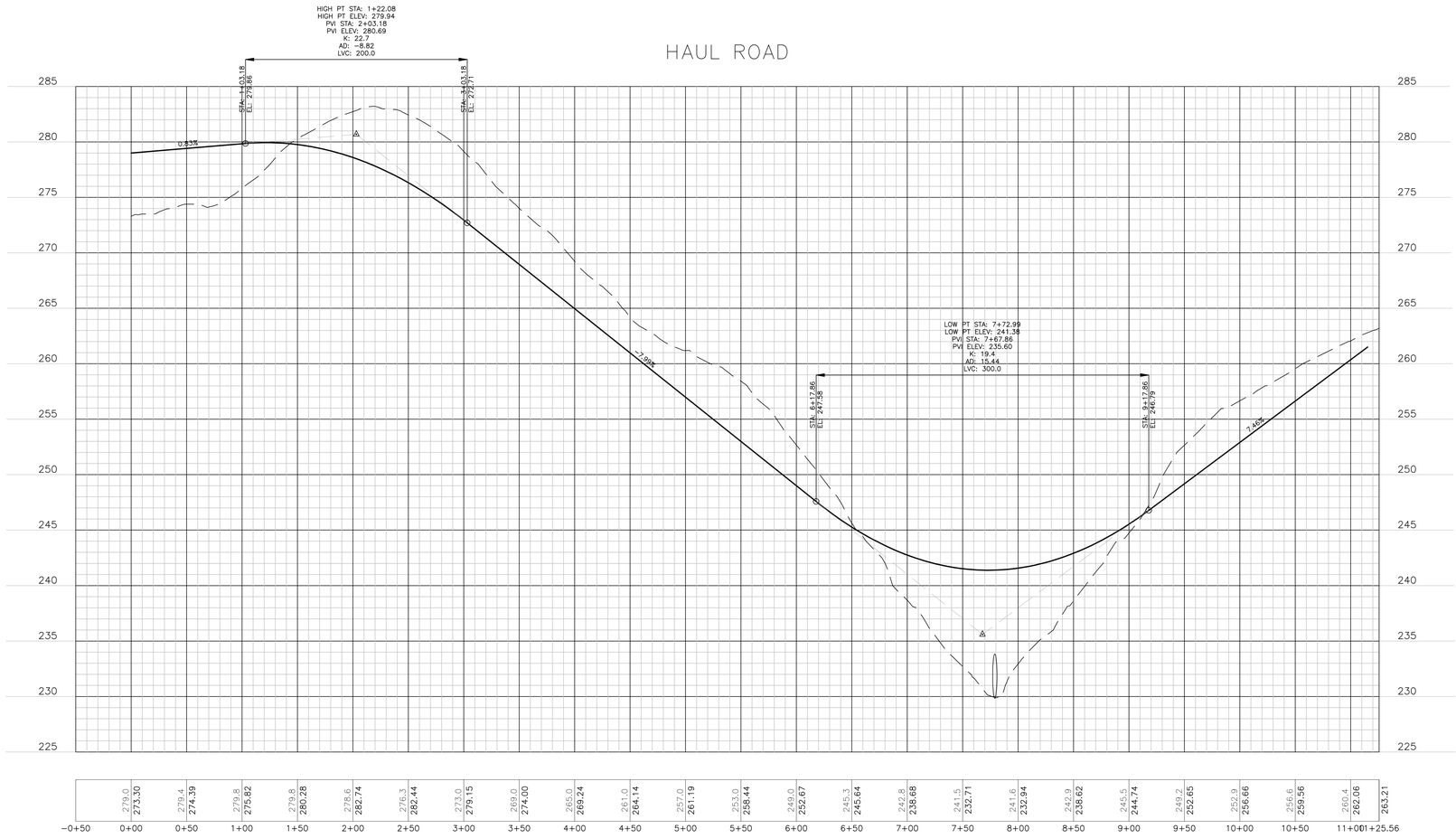


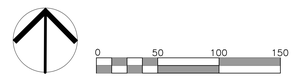
CUT CONDITION



FILL CONDITION

TEMPORARY HAUL ROAD DETAIL





a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Administrator

PLD

PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL SEAL 030856 ENGINEER MICHAEL L. SCHMIDT

07-13-23

LOT 9
HINTON OAKS INDUSTRIAL PARK

0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
- 1 05 JUNE 2023 PER TOWN COMMENTS
- 2 13 JULY 2023 PER TOWN COMMENTS

DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

TEMPORARY ACCESS ROAD PLAN AND PROFILE

DWG. NO. **SITE 6**

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(VARIABLE WID
D.B. 8541,

TP

RD

LOT 9
NEW
BUILDING #6
180,000 SF
FFE=263.0

NEW FIRE HYDRANT ASSEMBLY

CO INVERT=253.0

CO INVERT=252.55

CO INVERT=251.51

NEW 6" DIP FIRE LINE

CO INVERT=250.47

6" PVC SEWER SERVICE @ 1.04% MINIMUM SLOPE

CO INVERT=249.43

NEW PRIVATE GRINDER PUMP STATION

NEW 3" DIP DOMESTIC WATERLINE

NEW 6 DIP FIRE LINE

NEW FIRE HYDRANT ASSEMBLY

CO INVERT=248.39

FDC

CO

NOTE:
24" MINIMUM CLEARANCE SHALL BE PROVIDED BETWEEN STORM SEWER AND WATER/FORCE MAIN)

NEW FIRE HYDRANT ASSEMBLY IN A 5'x5' COR WATERLINE EASEMENT

5'x10' COR WATERLINE EASEMENT

NEW 8"x6" TEE

NEW 8" DIP FIRE LINE

NEW 3" DIP DOMESTIC WATERLINE

NEW 2" PVC FORCE MAIN (VERIFY REQUIRED SIZE BEFORE INSTALLATION)

NEW 6" DIP FIRE LINE

NEW 8"x6" REDUCER

NEW 8"x6" TEE

EV CHARGING STATIONS ARE REQUIRED PRIOR TO CO. COORDINATE REQUIRED POWER REQUIREMENTS WITH DUKE ENERGY

NEW 8"x6" REDUCER

NEW 8" TEE

INSTALL NEW 12"x8" REDUCER, NEW 8" WL

EX. CB

MH-1

EX. SSMH
TOP 281.94
OUT 275.99

NEW 8" SANITARY SEWER

EXISTING 12" DIP WL

EXISTING 8" SANITARY SEWER

NEW 2" DOUBLE-STRAP BRONZE SADDLE, CURB STOP, 2" COPPER WATERLINE, 2" WATER METER AND VALVE, AND 2" CITY APPROVED RPZ IN AN ABOVE GROUND HEATED VAULT. INCREASE TO 3" DIP AFTER RPZ.

NEW 8" DIP WL, 8" VALVE AND 8" CITY APPROVED RPDA IN AN ABOVE GROUND HEATED VAULT

EXISTING FIRE HYDRANT

NORTH

0 40 80 120
SCALE IN FEET

F:\Projects\WSHOIP\B6L9\Drawings\Site\WSHOIPB6L9_sitebase.dwg - 7-UTILITY Oct 31, '23 - 9:53am

COR STANDARD UTILITY NOTES

STANDARD UTILITY NOTES (as applicable):

1. All materials & construction methods shall be in accordance with City of Raleigh design standards, details & specifications (reference: CORPUD Handbook; current edition)
2. Utility separation requirements:
   a) A distance of 100' shall be maintained between sanitary sewer & any private or public water supply source such as an impounded reservoir used as a source of drinking water. If adequate lateral separation cannot be achieved, ferrous sanitary sewer pipe shall be specified & installed to waterline specifications. However, the minimum separation shall not be less than 25' from a private well or 50' from a public well.
   b) When installing water &/or sewer mains, the horizontal separation between utilities shall be 10'. If this separation cannot be maintained due to existing conditions, the variation allowed is the water main in a separate trench with the elevation of the water main at least 18" above the top of the sewer & must be approved by the Public Utilities Director. All distances are measured from outside diameter to outside diameter
   c) Where it is impossible to obtain proper separation, or anytime a sanitary sewer passes over a watermain, DIP materials or steel encasement extended 10' on each side of crossing must be specified & installed to waterline specifications
   d) 5.0' minimum horizontal separation is required between all sanitary sewer & storm sewer facilities, unless DIP material is specified for sanitary sewer.
   e) Maintain 18" min. vertical separation at all watermain & RCP storm drain crossings; maintain 18" min. vertical separation at all sanitary sewer & RCP storm drain crossings. Where adequate separations cannot be achieved, specify DIP materials & a concrete cradle having 6" min. clearance (per CORPUD details W-41 & S-49)
   f) All other underground utilities shall cross water & sewer facilities with 18" min. vertical separation required
3. Any necessary field revisions are subject to review & approval of an amended plan &/or profile by the City of Raleigh Public Utilities Department prior to construction
4. Developer shall provide 30 days advance written notice to owner for any work required within an existing City of Raleigh Utility Easement traversing private property
5. Contractor shall maintain continuous water & sewer service to existing residences & businesses throughout construction of project. Any necessary service interruptions shall be preceded by a 24 hour advance notice to the City of Raleigh Public Utilities Department
6. 3.0' minimum cover is required on all water mains & sewer forcemains. 4.0' minimum cover is required on all reuse mains
7. It is the developer's responsibility to abandon or remove existing water & sewer services not being used in redevelopment of a site unless otherwise directed by the City of Raleigh Public Utilities Department. This includes abandoning tap at main & removal of service from ROW or easement per CORPUD Handbook procedures
8. Install 2" copper water services with meters located at ROW or within a 2'x2' Waterline Easement immediately adjacent. *NOTE: it is the applicant's responsibility to properly size the water service for each connection to provide adequate flow & pressure*
9. Install sewer services @ 1.0% minimum grade with cleanouts located at ROW or easement line & spaced every 75 linear feet maximum
10. Pressure reducing valves are required on all water services exceeding 80 psi; backwater valves are required on all sanitary sewer services having building drains lower than 1.0' above the next upstream manhole
11. All environmental permits applicable to the project must be obtained from NCDWQ, US ACE &/or FEMA for any riparian buffer, wetland &/or floodplain impacts (respectively) prior to construction
12. NCDOT / Railroad Encroachment Agreements are required for any utility work (including main extensions & service taps) within state or railroad ROW prior to construction
13. Grease Interceptor / Oil Water Separator sizing calculations & installation specifications shall be approved by the CORPUD FOG Program Coordinator prior to issuance of a Building Permit. Contact Stephen Calvelley at (919) 996-2334 or stephen.calvelley@raleighnc.gov for more information
14. Cross-connection control protection devices are required based on degree of health hazard involved as listed in Appendix-B of the Rules Governing Public Water Systems in North Carolina. These guidelines are the minimum requirements. The devices shall meet American Society of Sanitary Engineering (ASSE) standards or be on the University of Southern California approval list. The devices shall be installed and tested (both initial and periodic testing thereafter) in accordance with the manufacturer's recommendations or the local cross-connection control program, whichever is more stringent. A Certificate of Compliance shall also be obtained for each device prior to issuance of a Building Permit. Contact Joana Hartley at (919) 996-5923 or joanie.hartley@raleighnc.gov for more information

Public
Water Distribution / Extension System
The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # W-4047

Authorization to Construct _____

Date _____

Public
Sewer Collection / Extension System
The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # S-5237

Authorization to Construct _____

Date _____

ATTENTION CONTRACTORS

The ***Construction Contractor*** responsible for the extension of water, sewer, and/or reuse, as approved in these plans, is responsible for ***contacting*** the ***Public Utilities Department*** at ***(919) 996-4540*** at least ***twenty four hours*** prior to beginning any of their construction.

Failure to notify both ***City Departments*** in advance of beginning construction, will result in the issuance of ***monetary fines,*** and require reinstallation of any water or sewer facilities not inspected as a result of this notification failure.

Failure to call for ***Inspection, Install a Downstream Plug,*** have ***Permitted Plans*** on the ***Jobsite,*** or any other ***Violation*** of ***City of Raleigh Standards*** will result in a ***Fine and Possible Exclusion*** from future work in the ***City of Raleigh.***

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval — Cydney S. Terry

Raleigh Water Review Office

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____

Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHMITZ

10-31-23

LOT 9 HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1 19 APR 2023 PER TOWN COMMENTS
2 05 JUNE 2023 PER TOWN COMMENTS
3 13 JULY 2023 PER TOWN COMMENTS
4 31 DEC 2023 WALL #5 REVISION

DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

UTILITY PLAN

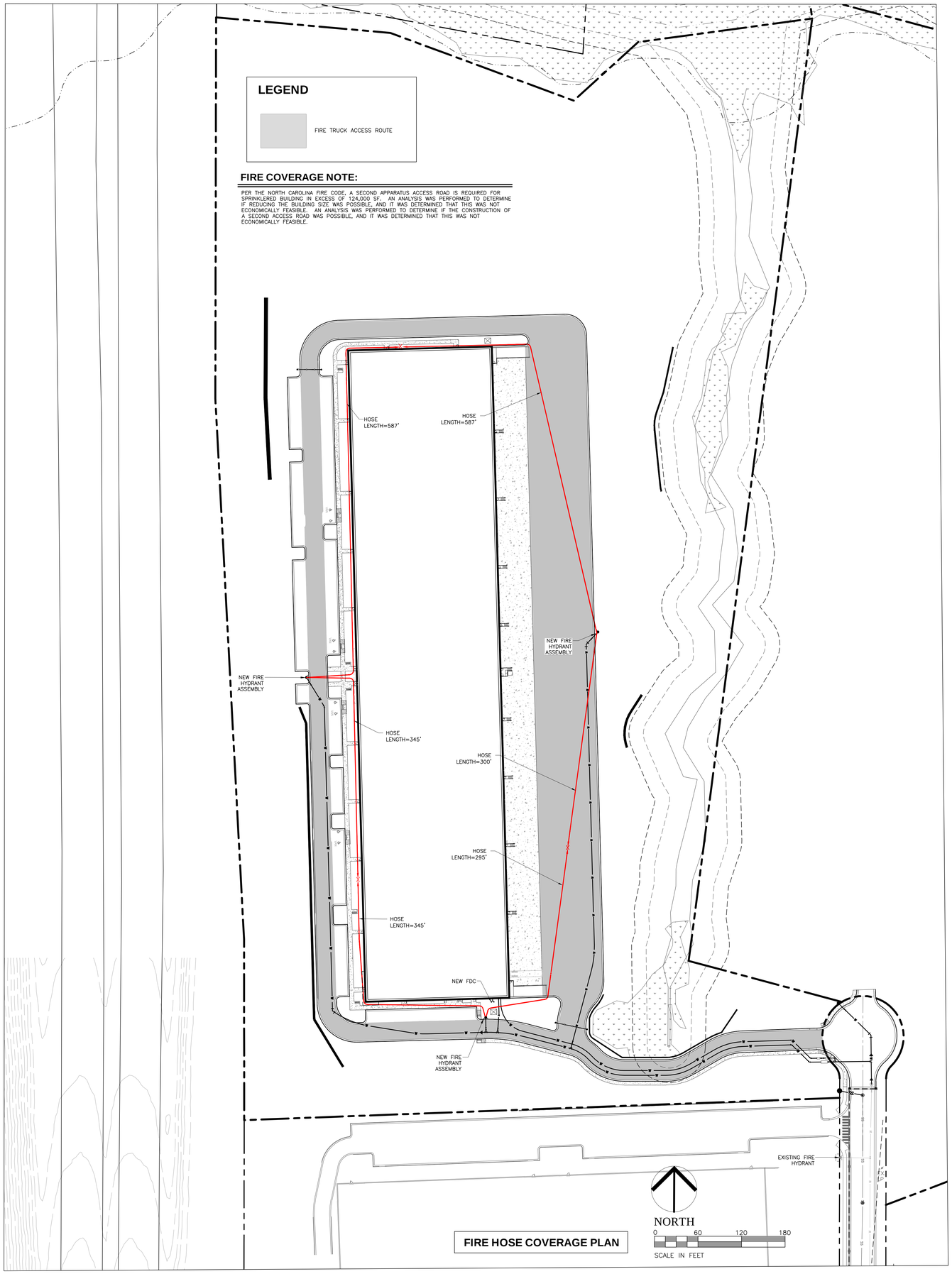
DWG. NO. **SITE 7**

LEGEND

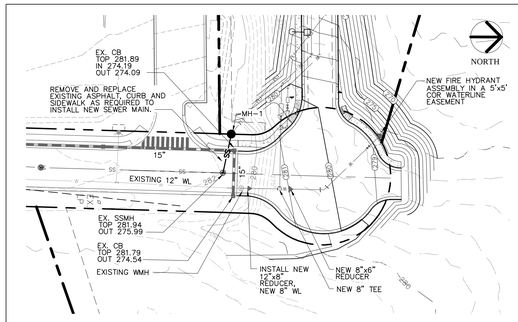
FIRE TRUCK ACCESS ROUTE

FIRE COVERAGE NOTE:

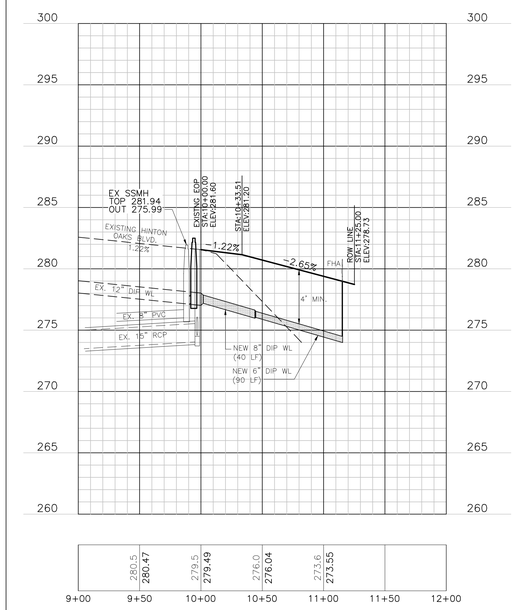
PER THE NORTH CAROLINA FIRE CODE, A SECOND APPARATUS ACCESS ROAD IS REQUIRED FOR SPRINKLERED BUILDING IN EXCESS OF 124,000 SF. AN ANALYSIS WAS PERFORMED TO DETERMINE IF REDUCING THE BUILDING SIZE WAS POSSIBLE, AND IT WAS DETERMINED THAT THIS WAS NOT ECONOMICALLY FEASIBLE. AN ANALYSIS WAS PERFORMED TO DETERMINE IF THE CONSTRUCTION OF A SECOND ACCESS ROAD WAS POSSIBLE, AND IT WAS DETERMINED THAT THIS WAS NOT ECONOMICALLY FEASIBLE.



FIRE HOSE COVERAGE PLAN

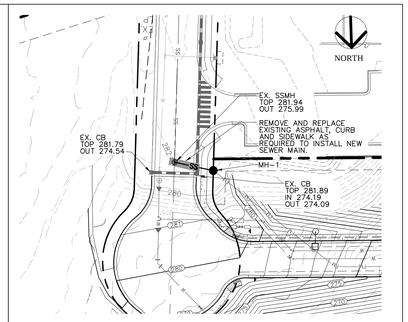


HINTON OAKS BLVD.

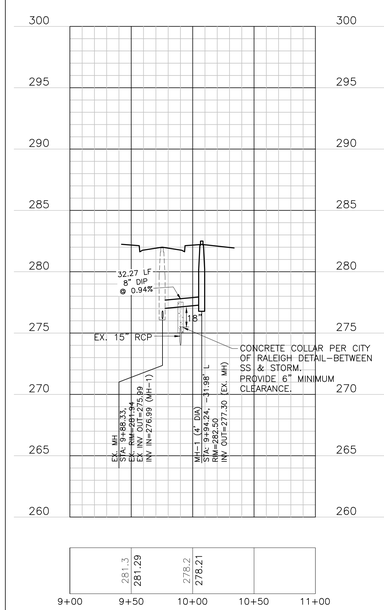


HINTON OAKS BLVD. PLAN & PROFILE

1"=50'



SANITARY SEWER



SANITARY SEWER PLAN & PROFILE

1"=50'

Public
Water Distribution / Extension System

The City of Raleigh consents to the connection and extension of the City's public water system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # W-4047

Authorization to Construct _____

Date _____

Public
Sewer Collection / Extension System

The City of Raleigh consents to the connection and extension of the City's public sewer system as shown on this plan. The material and Construction methods used for this project shall conform to the standards and specifications of the City's Public Utilities Handbook.

City of Raleigh
Public Utilities Department Permit # S-5237

Authorization to Construct _____

Date _____

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval Cydney S. Terry
Raleigh Water Review Office

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL SEAL 030856 ENGINEER MICHAEL L. SCHMIDT
10-31-23

LOT 9
HINTON OAKS INDUSTRIAL PARK

0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1 19 APR 2023
PER TOWN COMMENTS
2 05 JUNE 2023
PER TOWN COMMENTS
3 13 JULY 2023
PER TOWN COMMENTS
4 31 DEC 2023
WALL #5 REVISION

DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

FIRE HOSE COVERAGE AND HINTON OAKS BLVD. PLAN & PROFILE

DWG. NO. **SITE 8**

F:\Projects\WSHOIPB6L9\Drawings\Site\WSHOIPB6L9_sitebase.dwg - 8-FIRE COVERAGE PLAN Oct 31, '23 - 9:54am

SEDIMENT BASIN #1
BOTTOM=210.0
BERM=220.0

40' LONG EMERGENCY SPILLWAY @ ELEV=218.3

CONSTRUCT TO PERMANENT POND DIMENSIONS

INSTALL PERMANENT RISER AND OUTLET PIPE

4" SKIMMER W/2.5"ø ORIFICE

COIR BAFFLES

INSTALL SFO AS SHOWN UNTIL PERMANENT CHANNEL IS INSTALLED

INSTALL PERMANENT CHANNEL PER DETAIL ON DETAIL SHEET.

DEWATERING BAG LOCATION

TEMPORARY DIVERSION DITCH#1A

CHECK DAM

HORSESHOE INLET PROTECTION

12" MINIMUM SLOPE DRAIN. PLACE 4'X4'X18" THICK CLASS B RIP RAP AT OUTLET (TYP).

TEMPORARY DIVERSION DITCH#1A

15" SLOPE DRAIN. PLACE 4'X4'X18" THICK CLASS B RIP RAP AT OUTLET (TYP).

HORSESHOE INLET PROTECTION

CHECK DAM

CHECK DAM

HORSESHOE INLET PROTECTION

42" SLOPE DRAIN OR (3) 24" SLOPE DRAINS OR MULTIPLE PIPES WITH EQUIVALENT AREA. PLACE 4'X4'X18" THICK CLASS B RIP RAP AT OUTLET (TYP).

TEMPORARY DIVERSION DITCH#1B

TEMPORARY DIVERSION DITCH#1B

INSTALL CHECK DAM WHERE NATURAL DRAW ENTERS DIVERSION DITCH. FIELD LOCATE.

CHECK DAMS ARE TO BE INSTALLED AT EVERY 2' VERTICAL ELEVATION DIFFERENCE (TYP)

CHECK DAMS ARE TO BE INSTALLED AT EVERY 2' VERTICAL ELEVATION DIFFERENCE (TYP)

INSTALL CHECK DAM WHERE NATURAL DRAW ENTERS DIVERSION DITCH. FIELD LOCATE.

TEMPORARY DIVERSION DITCH#3

TEMPORARY DIVERSION DITCH#3

TEMPORARY DIVERSION DITCH#2A

50' RIPARIAN BUFFER

50' RIPARIAN BUFFER

TEMPORARY DIVERSION DITCH#2A

TEMPORARY DIVERSION DITCH#2B

PLACE 4'X4'X18" THICK CLASS B RIP RAP AT OUTLET (TYP).

SEDIMENT BASIN #2

BOTTOM=259.0
BERM=263.0
WEIR=10'@ELEVATION 261.00

1.5" SKIMMER W/1"ø ORIFICE

COIR BAFFLES

12" MINIMUM SLOPE DRAIN. PLACE 4'X4'X18" THICK CLASS B RIP RAP AT OUTLET (TYP).

ROCK CHECK DAM (TYP.)

HORSESHOE INLET PROTECTION (TYP)

DEWATERING BAG LOCATION

PROVIDE TARP AT SPILLWAY PER SKIMMER BASIN DETAIL ON DETAIL SHEET. TARP SHALL EXTEND TO SILT FENCE OUTLET.

TEMPORARY DIVERSION DITCH#4

NCGO1 PERMIT/BOX

TEMPORARY DIVERSION DITCH#5

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE FILL WILL BE REQUIRED FOR INSTALLATION OF CONSTRUCTION ENTRANCE. PLACE SILT FENCE AROUND THE FILL AREA WHILE INSTALLING CONSTRUCTION ENTRANCE.

CONCRETE WASHOUT

PLACE CHECK DAMS IN EXISTING SWALE, TO REMAIN DURING CLEARING, AND TO BE REMOVED ONCE GRADING REQUIRES REMOVAL.

INSTALL COARSE AGGREGATE AND TEMPORARY CROSSING PIPES AT TWO LOCATIONS SHOWN PER "STANDARD TEMPORARY STREAM CROSSING" DETAIL ON DETAIL SHEET. EACH CROSSING SHALL HAVE ONE 15" HDPE PIPE. PLACE 8'Lx4'wx18" THICK CLASS B RIP RAP AT OUTLET (TYP).

SEE SHEET 10A FOR DETAILED CONSTRUCTION SEQUENCE AT CROSSING

J-HOOK

50' RIPARIAN BUFFER

50' RIPARIAN BUFFER

SEE SHEET 10A FOR DETAILED CONSTRUCTION SEQUENCE AT CROSSING

15'R

10'

INSTALL COARSE AGGREGATE AND TEMPORARY CROSSING PIPE AS SHOWN PER "STANDARD TEMPORARY STREAM CROSSING" DETAIL ON DETAIL SHEET. CROSSING SHALL HAVE ONE 24" HDPE PIPE. PLACE 8'Lx4'wx18" THICK CLASS B RIP RAP AT OUTLET (TYP).

EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- TEMPORARY DIVERSION DITCH
- SF — SFO — SILT FENCE
- SILT FENCE OUTLET
- TP — TREE PROTECTION FENCE
- SF/TP — COMBINATION SILT/TREE PROTECTION FENCE
- XX XX — COIR BAFFLES
- CHECK DAM

DISTURBED AREA = 18.0 AC

* SEE SHEET 10A FOR EROSION CONTROL NOTES, CONSTRUCTION SEQUENCE, AND TEMPORARY DIVERSION DITCH DIMENSIONS

NORTH

0 50 100 150
SCALE IN FEET : 1"=50'

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

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Administrator

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ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHMIDT

06-05-23

LOT 9
HINTON OAKS INDUSTRIAL PARK

0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1. 19 APR 2023 PER TOWN COMMENTS
2. 05 JUNE 2023 PER TOWN COMMENTS

DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

STAGE 1 EROSION CONTROL PLAN

DWG. NO. **SITE 9**

F:\Projects\WSHOIPB6L9\Drawings\Site\WSHOIPB6L9_sitebase.dwg — 9-10 EC Jun 05, '23 — 9:28am

MAINTAIN DIVERSION AS FILLING OCURS

SHADE INDICATES SLOPES THAT REQUIRE EROSION CONTROL MATTING.

USE NORTH AMERICAN GREEN S75BN EROSION CONTROL BLANKET (OR APPROVED EQUAL)

MAINTAIN POSITIVE DRAINAGE

AS FILLING OCCURS, RELOCATE DIVERSION DITCHES TO THE TOP OF THE SLOPE.

MAINTAIN POSITIVE DRAINAGE

ADJUST DIVERSION DITCHES AS NECESSARY TO ALLOW FOR WALL CONSTRUCTION

SHADE INDICATES SLOPES THAT REQUIRE EROSION CONTROL MATTING.

USE NORTH AMERICAN GREEN S75BN EROSION CONTROL BLANKET (OR APPROVED EQUAL)

ADJUST DIVERSION DITCHES AS NECESSARY TO ALLOW FOR WALL CONSTRUCTION

INSTALL PERMANENT HEADWALL, PIPE CATCH BASIN, AND ENERGY DISSIPATER TO ESTABLISH HAUL ROAD TO ALLOW FILLING OF SITE.

SEE SHEET 10A FOR DETAILED CONSTRUCTION SEQUENCE AT CROSSING

NCGO1 PERMIT/BOX

CONCRETE WASHOUT

HAUL ROAD WILL BE STABILIZED WITH GRAVEL, TO BE IN PLACE IMMEDIATELY AFTER FINISHED GRADES ARE ESTABLISHED.

SEE SHEET 10A FOR DETAILED CONSTRUCTION SEQUENCE AT CROSSING

SHADE INDICATES SLOPES THAT REQUIRE EROSION CONTROL MATTING.

USE NORTH AMERICAN GREEN S75BN EROSION CONTROL BLANKET (OR APPROVED EQUAL)

95 LF 48" CPP. FIELD LOCATE INVERTS. GRADE ONLY AS NECESSARY TO INSTALL PIPE.

INSTALL 15'L X 12'W CLASS B RIP RAP AT BOTH ENDS

EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- TEMPORARY DIVERSION DITCH
- SF — SFO — SILT FENCE
- SILT FENCE OUTLET
- TP — TREE PROTECTION FENCE
- SF/TP — COMBINATION SILT/TREE PROTECTION FENCE
- XX XX — COIR BAFFLES
- CHECK DAM

DISTURBED AREA = 18.0 AC

* SEE SHEET 10A FOR EROSION CONTROL NOTES, CONSTRUCTION SEQUENCE, AND TEMPORARY DIVERSION DITCH DIMENSIONS

NORTH

0 50 100 150

SCALE IN FEET : 1"=50'

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
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By: Kevin Lewis Date: _____
Administrator

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ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHMIDT

10-31-23

LOT 9 HINTON OAKS INDUSTRIAL PARK

0 HINTON OAKS BOULEVARD KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
- 1 19 APR 2023 PER TOWN COMMENTS
- 2 05 JUNE 2023 PER TOWN COMMENTS
- 3 31 DEC 2023 WALL #5 REVISION

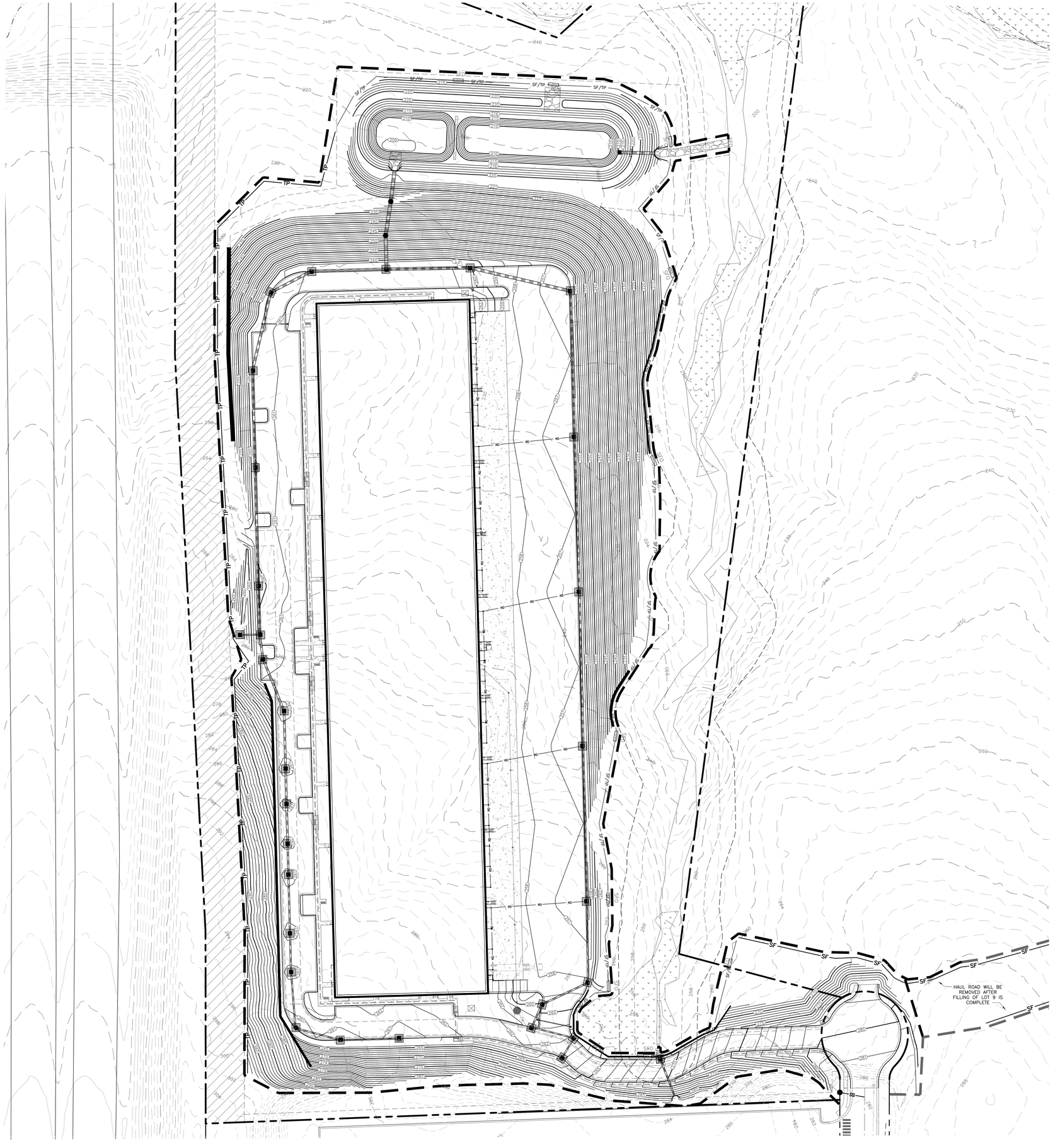
DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

STAGE 2 EROSION CONTROL PLAN

DWG. NO. **SITE 9A**

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EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- TEMPORARY DIVERSION DITCH
- SF — SILT FENCE
- SILT FENCE OUTLET
- TP — TREE PROTECTION FENCE
- SF/TP — COMBINATION SILT/TREE PROTECTION FENCE
- XX XX — COIR BAFFLES
- CHECK DAM

DISTURBED AREA = 18.0 AC

* SEE SHEET 10A FOR EROSION CONTROL NOTES, CONSTRUCTION SEQUENCE, AND TEMPORARY DIVERSION DITCH DIMENSIONS

NORTH

0 50 100 150
SCALE IN FEET : 1"=50'

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHNEIDER

10-31-23

LOT 9
HINTON OAKS INDUSTRIAL PARK

0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1. 19 APR 2023 PER TOWN COMMENTS
2. 05 JUNE 2023 PER TOWN COMMENTS
3. 31 DEC 2023 WALL #5 REVISION

DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

STAGE 3 EROSION CONTROL PLAN

DWG. NO. **SITE 10**

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PERMITTING AND ENVIRONMENTAL REGULATION NOTES

1.ESC PERMITTING AND INSPECTIONS:
   A. ONCE THE EROSION AND SEDIMENT CONTROL (ESC) PLAN HAS BEEN REVIEWED AND ACCEPTED BY THE TOWN OF KNIGHTDALE (TOK), A FORMAL PLAN APPROVAL LETTER WILL BE ISSUED TO THE FRP AND APPLICANTS. NOTE: AN ESC APPROVAL LETTER DOES NOT INDICATE PERMIT ISSUANCE.

   B. AN NCG01 CERTIFICATE OF COVERAGE MUST BE OBTAINED FROM THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY(NCDEQ). THE PERMIT CAN BE OBTAINED BY FILLING OUT THE ELECTRONIC NOTICE OF INTENT (E–N OI) FORM AT DEQ.NC.GOV/NCG01. PLEASE NOTE, THE E–N OI FORM MAY ONLY BE COMPLETED ONCE ESC PLANS HAVE BEEN APPROVED (A).

   C. THE TOWN OF KNIGHTDALE STORMWATER DEPARTMENT REQUIRES AN ON–SITE PRE–CONSTRUCTION (PRECON) MEETING PRIOR TO ISSUING A DEVELOPMENT PERMIT. THIS MEETING IS AN OPPORTUNITY TO GO OVER SITE MANAGEMENT EXPECTATIONS AND DISCUSS ANY PROJECT CONCERNS.

   D. ONCE THE PRE–CON MEETING HAS BEEN HELD AND ALL FEES PAID, THE LAND DEVELOPMENT PERMIT (LDP) WILL BE ISSUED FOR THE PROJECT.

   E. FOLLOWING SITE MOBILIZATION, ROUTINE "CONSTRUCTION SITE INSPECTIONS" BY TOK STAFF WILL OCCUR AS OUTLINED IN THE TOK EROSION AND SEDIMENT CONTROL ENFORCEMENT TREE. TO NOTE, "COMPLIANT/SATISFACTORY" INSPECTIONS WILL NEED TO OCCUR FOLLOWING:

      I. INSTALLATION OF INITIAL ESC PERIMETER CONTROLS(SF, SF/TP, SFOS) ONLY CLEARING THE PERIMETER RIBBON (25' MAX) –"PERIMETER CONTROL INSPECTION".

      II. INSTALLATION OF ALL PHASE 1ESC MEASURES INCLUDING ENGINEERED STRUCTURES – "CERTIFICATE OF COMPLIANCE INSPECTION". IT IS THE RESPONSIBILITY OF THE SITE MANAGER TO FORMALLY REQUEST THESE TYPES OF INSPECTIONS BY CONTACTING TOK PUBLIC WORKS. CLEARING/GRUBBING OUTSIDE OF THE LIMITED AREAS REQUIRED TO COMPLETE THE ABOVE ITEMS WILL RESULT IN ENFORCEMENT ACTION BY THE TOK.

   F. FOLLOWING THE COMPLETION OF THE ITEMS ABOVE – THE SITE CAN BE CLEARED AND DEVELOPED IN ACCORDANCE WITH THE APPROVED PLAN.

2. PERMITS BOX CONTENTS – A COPY OF THE TOK LAND DEVELOPMENT PERMIT, THE NCG01 CERTIFICATE OF COVERAGE (COC) AND REGULAR NPDES INSPECTIONS, A COPY OF THE APPROVED/REVISED ESC PLAN, AND (WHEN OBTAINED) THE TOK CERTIFICATE OF COMPLIANCE – MUST BE KEPT ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION. LOCATE A RAIN GAUGE ON SITE FOR FACILITATION OF INSPECTIONS AND RECORD KEEPING.

3. 401/404 PERMITS – APPROVAL OF THIS EROSION AND SEDIMENTATION CONTROL PLAN DOES NOT AUTHORIZE IMPACTS TO WETLANDS, COASTAL MARSH, STREAMS,OR OTHER WATERS OF THE STATE OR UNITED STATES OR SUPERSEDE ANY OTHER PERMITTING REQUIREMENT OF ANY FEDERAL, STATE OR LOCAL AGENCY. A,IF APPLICABLE, PROVIDE A COPY OF THE USACE 404 PERMIT AND DWR 401CERTIFICATIONS. PROVIDE A COPY OF THE DWR BUFFER AUTHORIZATION.

   I. SUBMIT DOCUMENTATION WITH MAPS SHOWING LOCATION AND EXTENT OF IMPACTS TO STREAMS AND WETLANDS WITH ANY SPECIAL CONDITIONS PERTAINING TO EROSION AND SEDIMENT CONTROL AND RESTORATION OF AFFECTED AREAS.

   II. IDENTIFY THE STREAMS, WETLANDS, AND BUFFERS ON THE PLAN SHEETS. INCLUDE ANY ADDITIONAL MEASURES, CONSTRUCTION SPECIFICATIONS, MAINTENANCE REQUIREMENTS AND CONSTRUCTION SEQUENCING AS REQUIRED BY THE404/401/BUFFER DETERMINATION AND BUFFER AUTHORIZATION ON THE PLAN SHEETS.

   III. FOLLOW ALL CONDITIONS OUTLINED IN THE CERTIFICATIONS, SPECIFICALLY REPORTING ANY DISCHARGES OUTSIDE OF THE PERMITTED SCOPE OF WORK.

4. AREAS OF ENVIRONMENTAL CONCERN AND CULTURAL RESOURCES – BEFORE ANY SITE WORK OCCURS ADEQUATELY IDENTIFY KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES BY USING APPROPRIATE IDENTIFIERS IN THE FIELD (TREE PROTECTION FENCING, FLAGGING, ETC.).

5. FILL/BORROW – ANY OFF–SITE BORROW AND/OR FILL REQUIRED FOR THIS PROJECT MUST COME FROM A SITE WITH AN APPROVED EROSION CONTROL PLAN, A SITE REGULATED UNDER THE MINING ACT OF 1971, OR A LANDFILL REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT. TRASH/DEBRIS FROM DEMOLITION ACTIVITIES OR GENERATED BY ANY ACTIVITIES ON SITE MUST BE DISPOSED OF AT A FACILITY REGULATED BY THE DIVISION OF SOLID WASTE MANAGEMENT OR PER DIVISION OF SOLID WASTE MANAGEMENT OR DIVISION OF WATER RESOURCES RULES AND REGULATIONS.

SOIL STOCKPILE NOTES

1. SEEDING OR COVERING STOCKPILES WITH TARPS OR MULCH IS REQUIRED AND WILL REDUCE EROSION PROBLEMS. TARPS SHOULD BE KEYED IN AT THE TOP OF THE SLOPE TO KEEP WATER FROM RUNNING UNDERNEATH THE PLASTIC.
2. THE APPROVED PLAN SHALL PROVIDE FOR THE USE OF STAGED SEEDING AND MULCHING ON A CONTINUAL BASIS WHILE THE STOCKPILE IS IN USE.
3. ESTABLISH AND MAINTAIN A VEGETATIVE BUFFER AT THE TOE OF THE SLOPE (WHERE PRACTICAL).

GENERAL EROSION CONTROL NOTES

1. SEDIMENT SHALL BE REMOVED FROM BASINS WHEN SEDIMENT STORAGE REACHES 50%. SEDIMENT BASINS ARE TO REMAIN IN PLACE DURING THE HOME CONSTRUCTION PHASE OF THE PROJECT AND ONLY REMOVED WITH APPROVAL FROM THE THE TOWN OF KNIGHTDALE
2. ALL SEDIMENT BASINS REQUIRE BAFFLES INSTALLED PER DETAILS ON DETAIL SHEET.
3. DIVERSIONS SHALL BE MODIFIED AS NEEDED TO ENSURE SEDIMENT LADEN WATER GOES INTO THE APPROPRIATE BASIN AT ALL TIMES.
4. THE WATERSHED MANAGER MAY DETERMINE THAT FLOCCULATES WILL BE REQUIRED DURING CONSTRUCTION, IF NECESSARY.

BASIN REMOVAL SEQUENCE

1. SCHEDULE A SITE MEETING WITH THE TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO DETERMINE IF A BASIN CAN BE REMOVED. INSTALL SILT FENCING OROTHER TEMPORARY EROSION CONTROL MEASURES AS NEEDED PRIOR TO REMOVAL OF THE BASIN.
2. CONTACT NCDEQ – RALEIGH REGIONAL OFFICE (919) 791–4200 TO DETERMINE THE DIVISION OF ENERGY, MINERAL AND LAND RESOURCES CONTACT PERSON TO RECEIVE DEWATERING NOTIFICATIONS. AT LEAST 10 DAY SPRIOR TO BEGINNING DEWATERING ACTIVITY, SEND EMAIL TO NCDEQ–DEMLRCONTACT PERSON AND COPY ENVIRONMENTAL CONSULTANT THAT MET YOUONSITE. THE EMAIL SHOULD INCLUDE E&SC JURISDICTION: TOWN OF KNIGHTDALE, TOK PROJECT: NAME, NUMBER, AND LOCATION (CITY/TOWN), ENVIRONMENTAL CONSULTANT NAME, AND ADDRESS THE FOLLOWING: A) REASON FOR CONVERSION, B) BASIN #, C) DEWATERING METHOD, AND D) ALL OTHER NECESSARY INFO FROM PART II, SECTION G, ITEM 4 OF THE NCG01. KEEP EMAIL FOR YOUR NPDES MONITORING DOCUMENTATION.
3. AFTER RECEIVING POSITIVE CONFIRMATION FROM NCDEQ–DEMLR THAT YOU MAY REMOVE THE BASIN OR ON > DAY 11, WHICHEVER IS SOONER. REMOVE BASIN(S) AND ASSOCIATED TEMPORARY DIVERSION DITCHES. IF PIPES NEED TO BE EXTENDED,PERFORM THIS OPERATION AT THIS TIME. FINE GRADE AREA IN PREPARATION FOR SEEDING.
4. PERFORM SEEDBED PREPARATION, SEED, MULCH AND ANCHOR ANY RESULTING BARE AREAS IMMEDIATELY USING NON–CLUMPING TURF GRASS(CENTIPEDE / HYBRID BERMUDA).
5. INSTALL VELOCITY DISSIPATORS AND/OR LEVEL SPREADERS AS REQUIRED ON THE EROSION CONTROL PLAN.
6. WHEN SITE IS FULLY STABILIZED, CALL EROSION CONTROL INSPECTOR FOR APPROVAL OF REMOVING REMAINING TEMPORARY EROSION CONTROL MEASURES AND ADVICE ON WHEN SITE CAN BE ISSUED A CERTIFICATE OF COMPLETION. NOTE: A MEETING SHOULD ALSO BE SCHEDULED WITH THE EROSION CONTROL INSPECTOR AND STORMWATER TECHNICIAN TO DETERMINE WHEN A BASIN MAY BE CONVERTED FOR STORM WATER USE.

CONSTRUCTION SCHEDULE

1. SCHEDULE AN INITIAL PRE–CONSTRUCTION CONFERENCE WITH THE TOWN OF KNIGHTDALE. OBTAIN A LAND–DISTURBANCE PERMIT.
2. INSTALL ALL PERIMETER CONTROLS AS SHOWN ON THE APPROVED PLANS, CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. CLEARING SHOULD BE LIMITED TO A MAXIMUM 35' "RIBBON" AROUND PERIMETER TO INSTALL CONTROLS. NO GRADING OR EXCAVATION SHOULD OCCUR.
3. SCHEDULE AN ONSITE PRE–CONSTRUCTION MEETING WITH THE TOWN OF KNIGHTDALE TO INSPECT THE INSTALLED PERIMETER CONTROLS
4. IF APPROVED, PROCEED WITH INSTALLING GRAVEL CONSTRUCTION PAD, TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS OR OTHER MEASURES AS SHOWN ON THE APPROVED PLANS. CLEAR ONLY AS NECCESARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS, AND BASINS IMMEDIATELY AFTER CONSTRUCTION.
5. THE CROSSING PIPE FOR THE HAUL ROAD SHOULD BE INSTALLED AT THIS TIME, AND WILL REMAIN IN PLACE DURING THE FILLING OPERATION. THE HAUL ROAD WILL BE REMOVED ONCE FILLING IS COMPLETED.

   • REFER TO THE DETAILED CONSTRUCTION SEQUENCES ON THIS SHEET FOR AREAS THAT DISTURB WETLANDS AND RIPARIAN BUFFERS

6. CALL TOWN OF KNIGHTDALE EROSION CONTROL INSPECTOR TO SCHEDULE AN ONSITE INSPECTION AND OBTAIN A CERTIFICATE OF COMPLIANCE.
7. BEGIN CLEARING AND GRUBBING. MAINTAIN DEVICES AS NEEDED. ROUGH GRADE SITE.

   WHEN INSTALLING THE RETAINING WALLS, ADJUST DIVERSIONS AS NECESSARY AROUND CONSTRUCTION AREA.
8. INSTALL STORM SEWER, IF SHOWN, AND PROTECT INLETS WITH BLOCK AND GRAVEL CONTROLS, SEDIMENT TRAPS OR OTHER APPROVED MEASURES AS SHOWN IN THE APPROVED PLAN. BEING CONSTRUCTION, BUILDING, ETC.
9. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISH GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
10. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL EROSION CONTROL INSPECTOR FOR AN INSPECTION.
11. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSIONS, SILT FENCE, SEDIMENT BASINS, ETC., AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATORS, SHOULD NOW BE INSTALLED.
12. WHEN VEGETATION HAS BECOME ESTABLISHED (90% GERMINATION), CALL FOR A FINAL INSPECTION BE THE EROSION CONTROL INSPECTOR. OBTAIN A CERTIFICATE OF COMPLETION

STABILIZATION NOTES



*EROSION CONTROL MATTING IS REQUIRED FOR:

1. ALL SLOPES GREATER THAN 3:1 AND SLOPES GREATER THAN 5' TALL.
2. ALL SLOPES GREATER THAN 8' TALL.

USE NORTH AMERICAN GREEN S75BN EROSION CONTROL BLANKET (OR APPROVED EQUAL)

1) Ground Stabilization*

Site Area Description	Stabilization Time Frame	Stabilization Time Frame Exceptions
• Perimeter dikes, swales, ditches and slopes	7 days	None
• High Quality Water (HQW) Zones	7 days	None
• Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
• Slopes 3:1 or flatter	14 days	7-days for slopes greater than 50 feet in length
• All other areas with slopes flatter than 4:1	14 days	None (except for perimeters and HQW Zones)

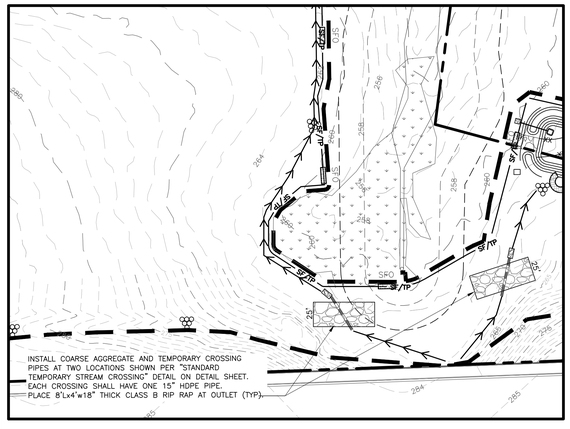
* "Extensions of time may be approved by the permitting authority based on weather or other site-specific conditions that make compliance impracticable." (Section II.B(2)(b))

SEDIMENT BASIN DESIGN DATA

BASIN	DA (Acres)	Q(10) (cfs)	Width (ft)	Length (ft)	Surface Area Required (sf)	Surface Area Provided (sf)	Side Slopes	Sediment Depth (ft)	Total Height (ft)	Weir	SKIMMER SIZE (in)	SKIMMER ORIFICE DIA (in)	DEWATERING TIME (days)
1	17.0	61.37	92' @ elev 220	356' @ elev=220	26,696	26,973 @ elev 218.3	varies -see plan	3' (elev=213)	10'	40' @ elev=218.3	4	2.5	3.7
2	1.4	5.00	46' @ elev=263	81' @ elev=263	2,192	2,764 @ elev=261.0	2:1	1.5' (elev 260.5)	4'	10' @ elev=261.0	1.5	1	3.1

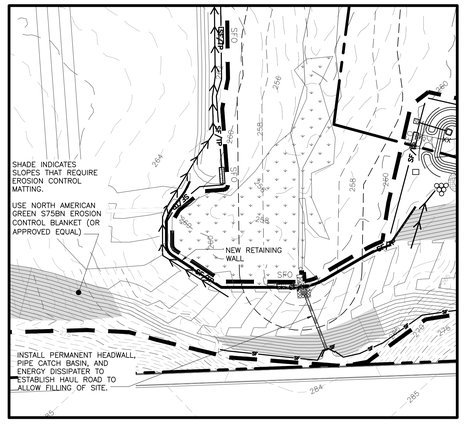
TEMPORARY DIVERSION DITCH DIMENSIONS

TEMPORARY DIVERSION DITCH #	BOTTOM WIDTH (FT)	DEPTH (FT)	SIDE SLOPES	SLOPE (FT/FT)	LENGTH (FT)	TOTAL DRAINAGE AREA (AC)	Q10 (CFS)	VELOCITY (FPS)	LINING TYPE
1A	0.0 (TRIANGULAR)	1.5	2:1	0.005	207	1.0	3.61	1.84	STRAW W/NET
1B	0.0 (TRIANGULAR)	1.5	2:1	0.05	319	0.3	1.08	3.21	STRAW W/NET
2A	2.0 (TRAPEZOIDAL)	1.5	2:1	0.07	171	2.5	9.03	7.57	STRAW W/NET
2B	0.0 (TRIANGULAR)	1.5	2:1	0.005	304	2.0	7.22	2.17	STRAW W/NET
3	3.0 (TRAPEZOIDAL)	2.0	2:1	0.005	894	12.6	45.49	3.44	STRAW W/NET
4	0.0 (TRIANGULAR)	1.5	2:1	0.005	113	0.4	1.44	1.43	STRAW W/NET
5	1.0 (TRAPEZOIDAL)	1.5	2:1	0.09	200	0.4	1.44	1.43	STRAW W/NET



CONSTRUCTION SCHEDULE - STAGE ONE - CLEARING

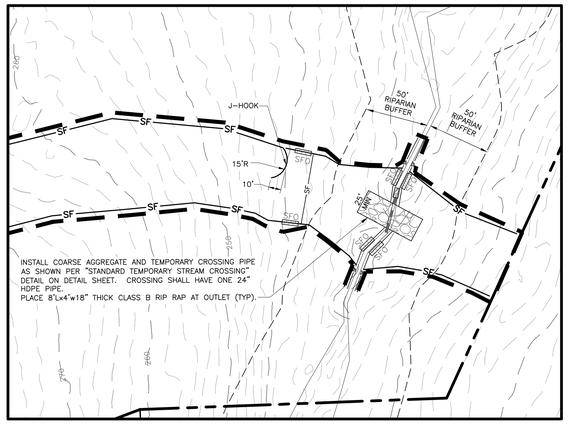
1. ENSURE ALL SILT FENCE/TPF AND SILT FENCE OUTLETS ARE INSTALLED AND FUNCTIONING CORRECTLY.
2. INSTALL COARSE AGGREGATE STEAM CROSSING, TEMPORARY HDPE PIPES, AND ENERGY DISSIPATERS .
3. INSTALL DIVERSION DITCHES AS SHOWN.
4. WORK IN THIS AREA SHALL BE PERFORMED DURING A PERIOD OF DRY WEATHER.
5. KEEP CLEARING AND EXCAVATION OF THE STREAM BANKS AND BED AND APPROACH SECTION TO A MINIMUM
6. DIVERT ALL SURFACE WATER FROM THE CONSTRUCTION SITE ONTO UNDISTURBED AREAS ADJOINING THE STREAM.
7. KEEP STREAM CROSSINGS AT RIGHT ANGLES TO THE STREAM FLOW.
8. ENSURE ANY BYPASS CHANNELS NECESSARY TO DEWATER THE CROSSING SITE ARE STABLE BEFORE DIVERTING THE STREAM. UPON COMPLETION OF THE CROSSING, FILL, COMPACT, AND STABILIZE THE CHANNEL APPROPRIATELY.



CONSTRUCTION SCHEDULE - STAGE 2 - FILLING

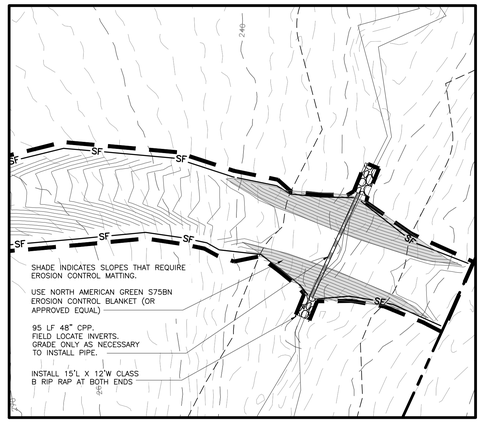
1. INSTALL RETAINING WALL AT THE CROSSING.
2. PROCEED WITH FILLING TO ESTABLISH THE HAUL ROAD. INSTALL NEW HEADWALL, RCP STORM SEWER, CATCH BASIN AND ENERGY DISSIPATER.
3. INSTALL EROSION CONTROL MATTING ON SLOPES AS SHOWN ON PLAN.

DETAILED CONSTRUCTION SCHEDULE AT WESTERN STREAM CROSSING



CONSTRUCTION SCHEDULE - STAGE ONE - CLEARING

1. ENSURE ALL SILT FENCE/TPF AND SILT FENCE OUTLETS ARE INSTALLED AND FUNCTIONING CORRECTLY.
2. INSTALL COARSE AGGREGATE STEAM CROSSING, TEMPORARY HDPE PIPE, AND ENERGY DISSIPATER.
3. WORK IN THIS AREA SHALL BE PERFORMED DURING A PERIOD OF DRY WEATHER.
4. KEEP CLEARING AND EXCAVATION OF THE STREAM BANKS AND BED AND APPROACH SECTION TO A MINIMUM
5. DIVERT ALL SURFACE WATER FROM THE CONSTRUCTION SITE ONTO UNDISTURBED AREAS ADJOINING THE STREAM.
6. KEEP STREAM CROSSINGS AT RIGHT ANGLES TO THE STREAM FLOW.
7. ENSURE ANY BYPASS CHANNELS NECESSARY TO DEWATER THE CROSSING SITE ARE STABLE BEFORE DIVERTING THE STREAM. UPON COMPLETION OF THE CROSSING, FILL, COMPACT, AND STABILIZE THE CHANNEL APPROPRIATELY.



CONSTRUCTION SCHEDULE - STAGE 2 - FILLING

1. INSTALL 48" CPP AND ENERGY DISSIPATERS.
2. PROCEED WITH FILLING TO ESTABLISH THE HAUL ROAD.
3. INSTALL EROSION CONTROL MATTING ON SLOPES AS SHOWN ON PLAN.
4. INSTALL GRAVEL ON HAUL ROAD.

DETAILED CONSTRUCTION SCHEDULE AT EASTERN STREAM CROSSING

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522–204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F–0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030855 MICHAEL L. SCHNEIDER
06-05-23

LOT 9
HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **24 APR 2023**

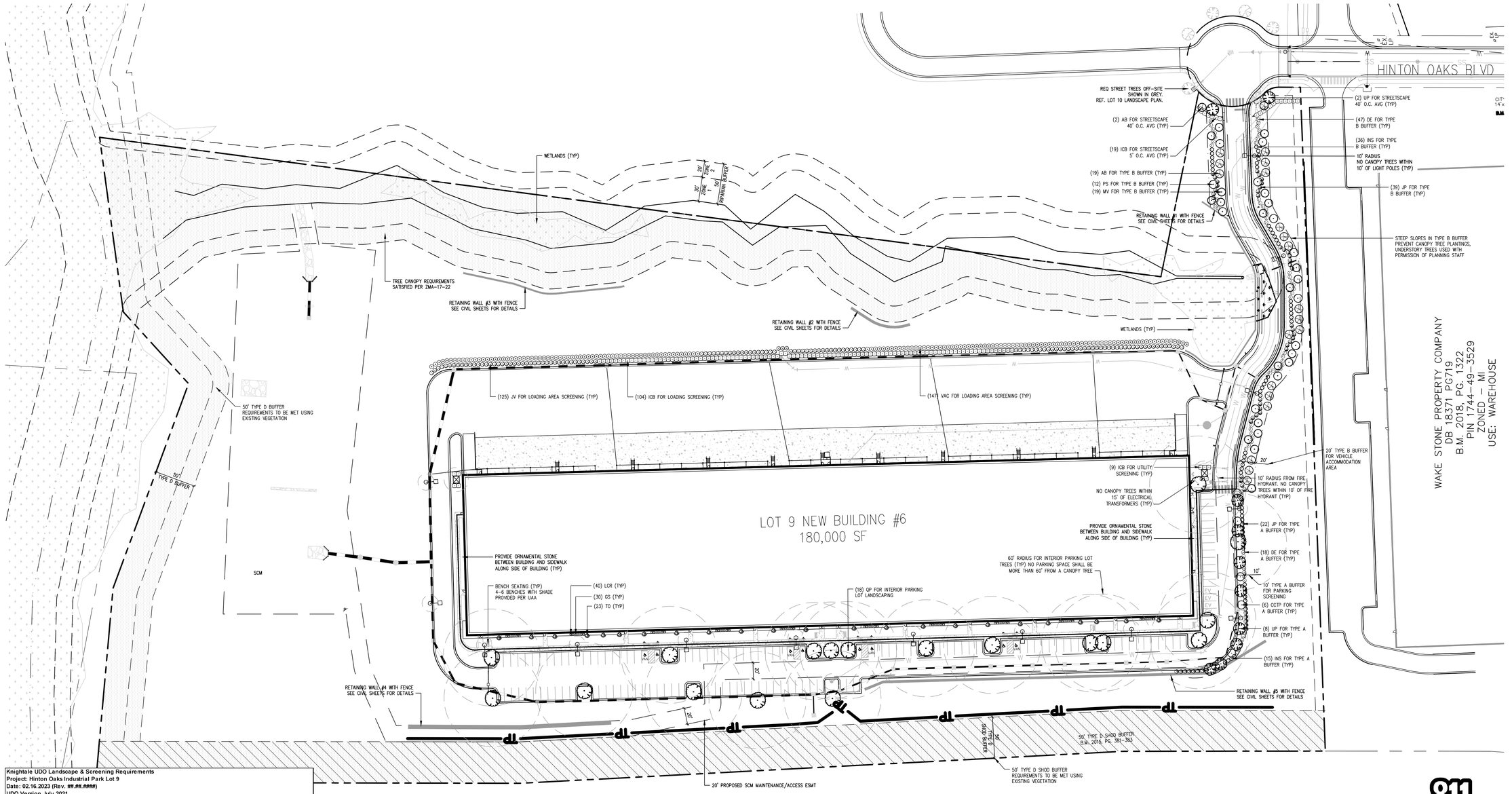
REVISIONS:
1 19 APR 2023
PER TOWN COMMENTS
2 05 JUNE 2023
PER TOWN COMMENTS

DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

EROSION CONTROL NOTES

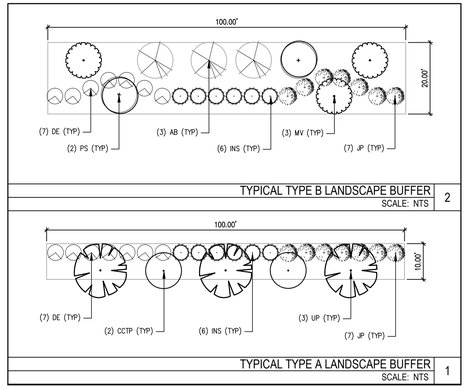
DWG. NO. **SITE 10A**



Knightdale UDO Landscape & Screening Requirements Project: Hinton Oaks Industrial Park Lot 9 Date: 02.16.2023 (Rev. ##.##.####) UDO Version July 2021						
Tree Canopy Coverage Requirements						
Tree Canopy Requirements Satisfied with ZMA-17-22						
10 FT Type 'A' Buffer Yard for Parking Screening						
Buffer Type:						A
Combined length of "A" Buffer areas					274	LF
Canopy Trees Required (2" cal. 8' ht @ 3/100 LF)	274	x	0.03	=	8.2	EA
Canopy Trees Provided (2" cal. 8' ht @ 3/100 LF)					8	EA
Understory Trees Required (1.25" cal. 6' ht @ 2/100 LF)	274	x	0.02	=	5.5	EA
Understory Trees provided(1.25" cal, 6' ht @ 2/100 LF)					6	EA
Shrubs Required (18" ht, @ 20/100 LF)(4' Semi-Opaque)	274	x	0.20	=	54.8	EA
Shrubs Provided (18" ht, @ 20/100 LF)(4' Semi-Opaque)					55	EA
20 FT Type 'B' Buffer Yard for Vehicle Accomodation Area Screening						
Buffer Type:						B
Combined length of "B" Buffer areas					611	LF
Canopy Trees Required (2" cal. 8' ht @ 3/100 LF)	611.35	x	0.03	=	18.3	EA
Understory Trees Provided due to Slope (1.25" cal. 6' ht @ 3/100 LF)					19	EA
Understory Trees Required (1.25" cal. 6' ht @ 5/100 LF)	611.35	x	0.05	=	30.6	EA
Understory Trees provided(1.25" cal, 6' ht @ 5/100 LF)					31	EA
Shrubs Required (18" ht, @ 20/100 LF)(6' Semi-Opaque)	611.35	x	0.20	=	122.3	EA
Shrubs Provided (18" ht, @ 20/100 LF)(6' Semi-Opaque)					122	EA
Hinton Oaks UAA Streetscape Requirements						
Plantings shall be required within 20' of Hinton Oaks ROW						
Length of ROW					98	LF
Canopy Trees Required (2" cal. 8' ht. @ 40' o.c. average)	98	/	40		2.0	EA
Canopy Trees Provided (2" cal. 8' ht. @ 40' o.c. average)					2	EA
Understory Trees Required (1.25" cal. 6' ht. @ 40' o.c. average)	98	/	40		2.0	EA
Understory Trees Provided (1.25" cal. 6' ht. @ 40' o.c. average)					2	EA
Shrubs Required (18" ht, @ 5' O.C. average)	98	/	5.00	=	19.0	EA
Shrubs Provided (18" ht, @ 5' O.C. average)					19	EA
Loading area screening per UAA Landscape Requirements						
2 rows of evergreen shrubs planted 5' o.c. along loading areas visible to Hinton Oaks Blvd						
Length of Loading Area visible to Hinton Oaks Blvd					916.5	LF
Shrubs Required (18" ht, @ 5' O.C. average)	916.5	/	5.00	=	183	EA
Total shrubs required (including second row)	183.0	x	2	=	366	EA
Shrubs Provided (18" ht, @ 5' O.C. average)					375	EA

PLANT LIST - THIS SHEET ONLY

QTY	SYM	BOTANICAL NAME	COMMON NAME	CALIPER	HEIGHT	REMARKS
TREES						
21	AB	Acer buergerianum 'Aeryn'	Aeryn Trident Maple	1.25" MIN	6' MIN	Street Tree, B Buffer
6	CCTP	Cercis canadensis 'Tennessee Pink'	Tennessee Pink Eastern Redbud	1.25" MIN	6' MIN	Understory Tree, A Buffer
19	MV	Magnolia virginiana	Sweetbay Magnolia	1.25" MIN	6' MIN	Understory Tree, B Buffer
12	PS	Prunus serrulata 'Kwanzan'	Kwanzan Japanese Cherry	1.25" MIN	6' MIN	Understory Tree, B Buffer
18	QP	Quercus Phellos	Willow Oak	2" MIN	8' MIN	Canopy Tree
10	UP	Ulmus parvifolia 'Emer II'	Chinese Lacebark Elm	2" MIN	8' MIN	Canopy Tree, Street Tree, A Buffer
SHRUBS						
65	DE	Distylium 'Emerald Heights'	Emerald Heights Dystilium	3 GAL	18" MIN	A & B Buffer
131	ICB	Ilex comuta 'Burfordii Nana'	Dwarf Burford Holly	3 GAL	18" MIN	Screening, Streetscape
51	INS	Ilex x 'Nellie R. Stevens'	Nellie R. Stevens Holly	3 GAL	18" MIN	A & B Buffer
57	JP	Juniperus x pfitzeriana 'Sea Green'	Sea Green Juniper	3 GAL	18" MIN	A & B Buffer
125	JV	Juniperus virginiana	Eastern Redcedar	3 GAL	18" MIN	Loading Screening
40	LCR	Loropetalum chinense 'Ruby'	Ruby Chinese Loropetalum	3 GAL	18" MIN	Foundation Planting
23	TO	Thuja occidentalis 'Emerald'	Emerald Arborvitae	7 GAL	18" MIN	Foundation Planting
147	VAC	Viburnum awabuki 'Chindo'	Chindo Viburnum	3 GAL	18" MIN	Loading Screening
VINES						
30	GS	Gelsemium sempervirens	Carolina Jessamine	3 GAL	18" MIN	Foundation Planting



TYPICAL TYPE B LANDSCAPE BUFFER 2
SCALE: NTS

TYPICAL TYPE A LANDSCAPE BUFFER 1
SCALE: NTS

SEE LP9.1 FOR LANDSCAPE DETAILS.

HATCH LEGEND:
- TREE CANOPY AREA COVERAGE
- SHOD BUFFER
- WETLANDS

Know what's **below.** **Call** before you dig.

60' 30' 0 60' 120'
SCALE: 1" = 60'

CODE COMPLIANT LANDSCAPE PLAN

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Land Use Administrator

JDAVIS
510 South Wilmington Street | Raleigh, NC 27601 | tel 919.835.1500
1216 Chestnut St. 7th Floor | Philadelphia, PA 19107 | tel 215.545.0121

ZMA-17-22

Hinton Oaks Industrial Park Lot 9
0 Hinton Oaks Boulevard
Knightdale, North Carolina 25745

CONSTRUCTION DRAWINGS

NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 953 KENNETH D. THOMPSON 11.1.2023

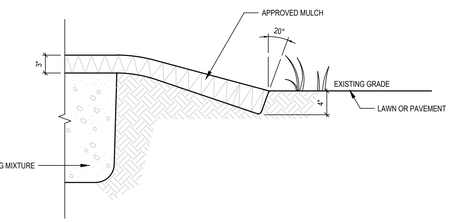
JDAVIS ARCHITECTS PC REGISTERED ARCHITECTURAL COMPANY CERT. NO. 51208 NORTH CAROLINA RALEIGH, N.C.

PROJECT:	PLD-23030	DATE
ISSUE:	Construction Drawings	02.16.2023
	Retaining Wall Revision	11.01.2023
REVISIONS:		
DRAWN BY:	JET, ML	
CHECKED BY:	KT	
CONTENT:	CODE COMPLIANT LANDSCAPE PLAN	

LP1.1

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11/1/2023 11:45 AM P:\23proj\23030_Hinton-Oaks-Industrial-Park-Lot-9\4c_LAND\DP\Dwg\23030-Hinton_Oaks_Lot_9-SP03.dwg



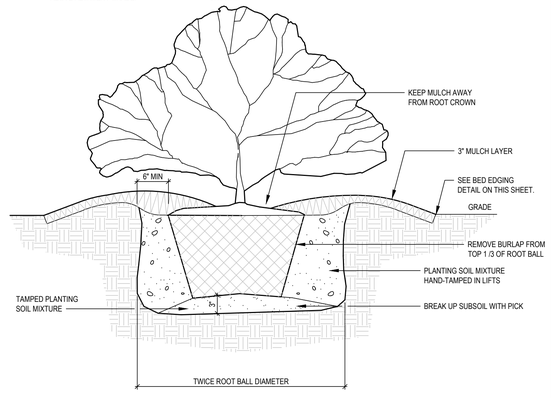
BED EDGING

SCALE: NTS

5

SHRUB PLANTING NOTES

1. IF PLANTING HOLES ARE DUG WITH A LARGE AUGER, BREAK DOWN THE SIDES WITH A SHOVEL TO ELIMINATE GLAZING AND CREATE THE SLOPING SIDE PROFILE SHOWN ON THE DETAIL.
2. SET SHRUB 2 INCHES HIGHER THAN ABOVE ADJACENT GRADE.
3. SYNTHETIC BURLAP SHALL BE REMOVED ENTIRELY FROM ROOT BALL.
4. PROVIDE 2 INCH DEEP SAUCER AROUND SHRUB.
5. KEEP MULCH AWAY FROM ROOT CROWN.
6. THOROUGHLY SOAK THE ROOT BALL AND ADJACENT PREPARED SOIL SEVERAL TIMES DURING THE FIRST MONTH AFTER PLANTING AND REGULARLY THROUGHOUT THE MAINTENANCE PERIOD.



B & B SHRUB INSTALLATION

SCALE: NTS

4

LANDSCAPE NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF UTILITIES PRIOR TO INSTALLATION.
2. THE PLAN DEPICTS REQUIRED PLANTINGS REQUIRED BY THE TOWN OF KNIGHTDALE.
3. ALL PLANT MATERIAL TO COMPLY WITH AMERICAN STANDARD FOR NURSERY STOCK BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
4. ALL PLANTS TO BE COMPACT, UNIFORM AND WELL GROWN.
5. LOCATION OF PLANT MATERIAL TO BE REVIEWED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
6. ALL CONSTRUCTION TO CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE TOWN OF KNIGHTDALE.
7. ALL PLANTING BEDS ARE TO BE MULCHED TO A MINIMUM DEPTH OF 3" WITH AGED TRIPLE SHREDDED HARDWOOD MULCH FROM A SINGLE SOURCE COMMERCIAL VENDOR WITH A MAXIMUM PARTICLE SIZE OF 2 INCHES, FREE OF WEED SEED AND WASTE MATERIALS. NO PINE STRAW PERMITTED. KEEP MULCH 4 TO 6 INCHES AWAY FROM TREE TRUNKS OR STEMS.
8. ALL LAWN AREAS TO BE SEEDED OR/AND SODDED AS PER MANUFACTURER'S SPECIFICATIONS. REFER TO LANDSCAPE PLAN(S). ALL DISTURBED AREA SHALL EITHER BE MULCH OR LAWN.
9. WITHIN THE SIGHT TRIANGLES SHOWN ON THIS PLAN, THERE SHALL BE NO SIGHT OBSTRUCTING OR PARTLY OBSTRUCTING WALL, FENCE, SIGN, FOLIAGE, BERMS, OR PARKED VEHICLES BETWEEN THE HEIGHTS OF 24 INCHES AND EIGHT FEET ABOVE THE CURB LINE ELEVATION OR THE NEAREST TRAVELED WAY IF NO CURBING EXISTS.
10. HVAC EQUIPMENT AND UTILITY DEVICES (TO INCLUDE, BUT NOT LIMITED TO TELEPHONE AND CABLE PEDESTALS; ELECTRICAL TRANSFORMERS; BACKFLOW-DEVICE HOTBOX, ETC) SHALL BE SCREENED FROM OFF-SITE VIEW BY EVERGREEN SHRUBS, FENCE OR WALL.
11. ALL CONFLICTS BETWEEN PROPOSED LANDSCAPE, UTILITIES AND STORMWATER WILL BE RESOLVED PRIOR TO APPLICATION FOR BUILDING PERMITS. UTILITY AND STORMWATER PLANS DEPICTED IN THIS SUBMITTAL ARE PRELIMINARY AND ARE SUBJECT TO CHANGE WITH THE DEVELOPMENT OF CONSTRUCTION DOCUMENTS.
12. STREET TREES SHALL BE MAINTAINED IN GOOD, TRIMMED AND NEAT CONDITION, AND AT MATURITY SHOULD PROVIDE 13.5' OF CLEARANCE TO ACCOMMODATE EMERGENCY RESPONSE VEHICLES.
13. MIN. 10' DISTANCE SHALL BE PROVIDED BETWEEN LIGHT POLES AND CANOPY TREE TRUNKS.
14. TREES WITHIN 20 FT. OF OVERHEAD POWER LINE(S) SHALL BE SUBSTITUTED WITH 2 UNDERSTORY TREES.
15. CONTRACTOR SHALL NOT PLANT TREES/SHRUBS AT ANY LOCATION WHERE THEY WILL INTERFERE WITH PEDESTRIANS EXITING AUTOS PARKED IN PARALLEL SPACES.
16. THE SITE SHALL BE STABILIZED AND SEEDED PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY (CO).

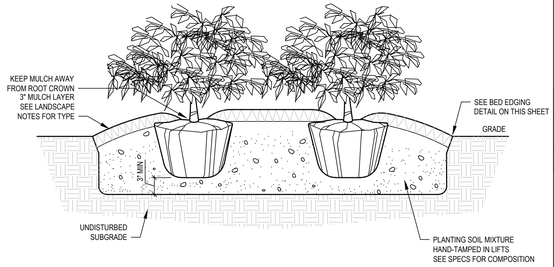
LANDSCAPE NOTES

SCALE: NTS

3

MASS PLANTING NOTES

1. PRUNE CROWDED, BROKEN, OR STRAY BRANCHES. CUT FLUSH, LEAVING CAMBIUM EDGE CLEAN.
2. CROWN PLANTING BED A MIN. OF 3 INCHES ABOVE ADJACENT GRADE EXCEPT IN COURTYARD SITUATIONS WHERE BEDS SHALL BE SLOPED TO NEAREST DRAIN BASIN.
3. KEEP MULCH AWAY FROM ROOT CROWN.



CONTAINER PLANT INSTALLATION

SCALE: NTS

2

NOTES:

1. REMOVE WIRE OR NYLON TWINE FROM BALL.
2. SOAK ROOT BALL AND PLANT PIT IMMEDIATELY AFTER INSTALLATION.

ALL TREES SHALL MEET AMERICAN STANDARD FOR NURSERY STOCK (AMSI, 1990, PART 1, "SHADE AND FLOWERING TREES")

FOR EXAMPLE: CALIPER	HEIGHT (RANGE)	MAX. HEIGHT	MIN. ROOT BALL DIA.	MIN. ROOT BALL DEPTH
2"	12–14'	16'	24"	16"
3"	14–16'	18'	32"	21"

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TREE PLANTING (FOR SINGLE AND MULTI-STEM TREES)	STD. NO. 3.25

TOWN OF KNIGHTDALE STANDARD TREE PLANTING DETAIL

SCALE: NTS

1

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____

Land Use Administrator

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JDAVIS

510 South Wilmington Street | Raleigh, NC 27601 | tel 919.835.1500
1216 Chestnut St. 7th Floor | Philadelphia, PA 19107 | tel 215.545.0121

CD-XXXX-2023

REFERENCE: ZMA-17-22

Hinton Oaks Industrial Park Lot 9

0 Hinton Oaks Boulevard
Knightdale, North Carolina 25745

CONSTRUCTION DRAWINGS

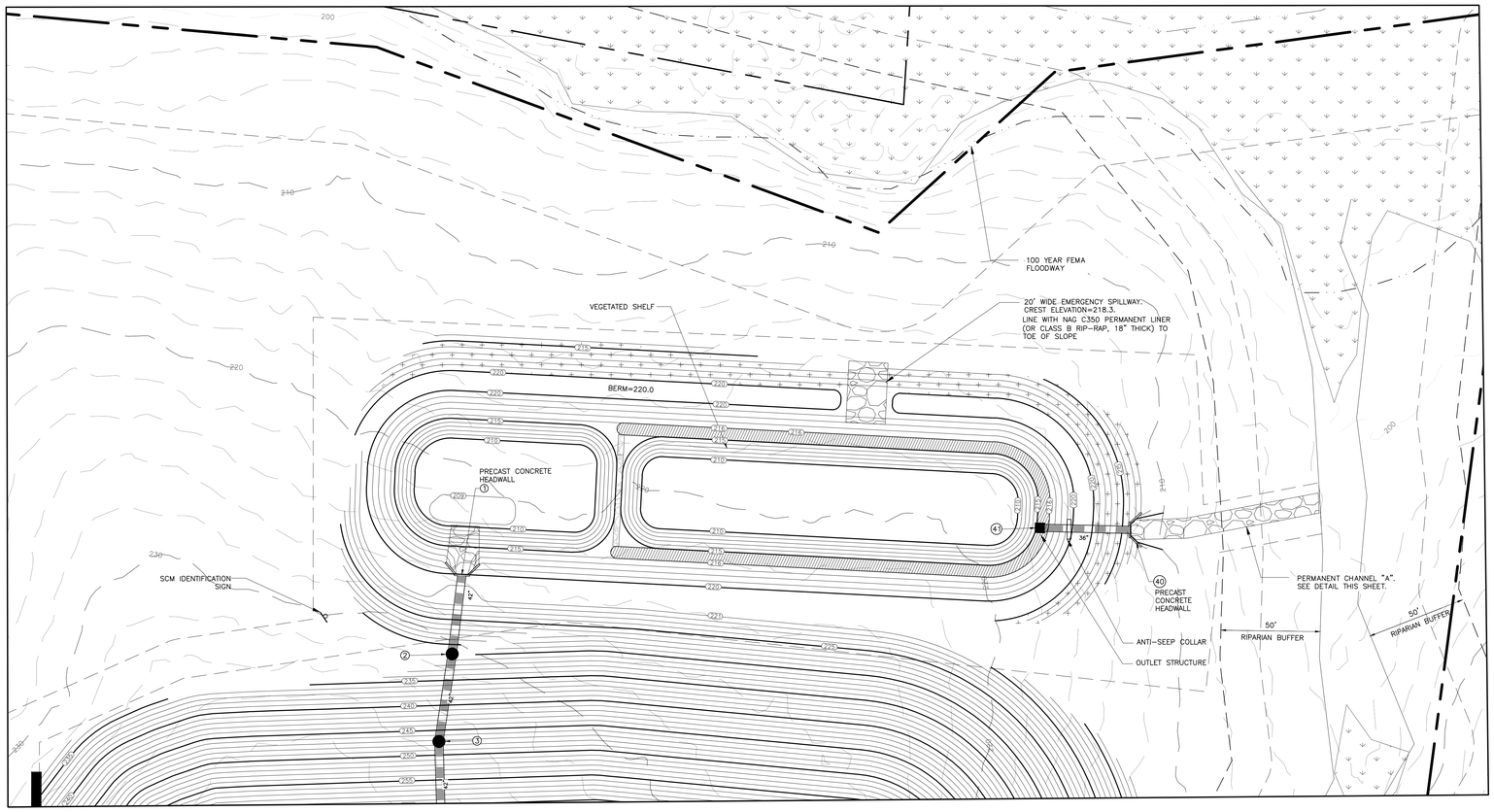
NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT 957 KEITH D. THOMPSON

JDAVIS ARCHITECTS, PC REGISTERED ARCHITECTURAL COMPANY CERT. NO. 51208 NORTH CAROLINA RALEIGH, N.C.

PROJECT:	PLD-23030	DATE
ISSUE:	Construction Drawings	02.16.2023
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CHECKED BY:	KT	
CONTENT:	LANDSCAPE DETAILS	
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LP9.1

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4/21/2023 12:14 PM P:\23proj\23030_Hinton-Oaks-Industrial-Park-Lot-9\4x_LAND\DP\Dwg\23030-Hinton_Oaks_Lot_9-SP02.dwg



TOWN OF KNIGHTDALE SCM PLANTING NOTES

1. THE DAM STRUCTURE,INCLUDING FRONT AND BACK EMBANKMENT SLOPES, OF THE POND SHALL BE VEGETATED WITH NON-CLUMPING TURF GRASS OR SOD. (CENTIPEDE/HYBRID-BERMUDA) 90%GERMINATION OF NON-CLUMPING TURF WILL BE REQUIRED PRIOR TO FINAL CERTIFICATION FORM THE TOWN.
2. THE VEGETATED SHELF SHALL BE PLANTED WITH A MINIMUM OFTHREE DIVERSE SPECIES OF HERBACEOUS, NATIVE VEGETATION AT A MINIMUM DENSITY OF 50 PLANTS PER 200FEET OF SHELF AREA.
3. CONTRACTOR TO WORK WITH SOILS SCIENTIST TO ENSURE SOILS ARE ADEQUATE TO SUPPORT PROPER ESTABLISHMENT AND GROWTH OF THE AQUATIC PLANTINGS. CONTRACTOR TO AMEND SOILS AND INSTALL SOILS IN PLANT, SHRUB, AND TREE AREAS PER DETAILS, SOIL SPECIFICATIONS. NCDENR SPECIFICATION, AND SOIL SCIENTIST RECOMMENDATIONS.
4. ALL AQUATIC PLANTINGS ARE TO BE INSTALLED DURING THE APPROPRIATE TIME OF YEAR TO ENSURE SURVIVABILITY. (LAST SPRING FROST AND THE FIRST FALL FROST).
5. ALL DISTURBED AREAS AROUND THE OUTSIDE OF THE DEVICE SHALL BE SEEDED WITH A LAWN AREA SEED MIX (PER SEEDING SPECIFICATIONS) NATIVE GRASSES, LEGUMES, CLOVERS, AND WILDFLOWERS.
6. IF THE DEVICE WAS USED DURING CONSTRUCTION AS A SEDIMENT BASIN OR TRAP, THE BASIN MUST BE CLEANED OUT, GRADED, APPROPRIATE AREAS COVERED WITH 4 OF TOPSOIL AS SPECIFIED IN NOTE #2 ABOVE, AND VEGETATED WITHIN 14 DAYS OF THE COMPLETION OF CONSTRUCTION.
7. CONTRACTOR SHALL WATER ALL VEGETATION AND GRASS ON A WEEKLY BASIS AS NEEDED TO ENSURE GRASS AND PLANT SURVIVAL UNTIL AFTER THE SCM IS CERTIFIED AND ACCEPTED BY THE TOWN.

SCM PLANT SCHEDULE

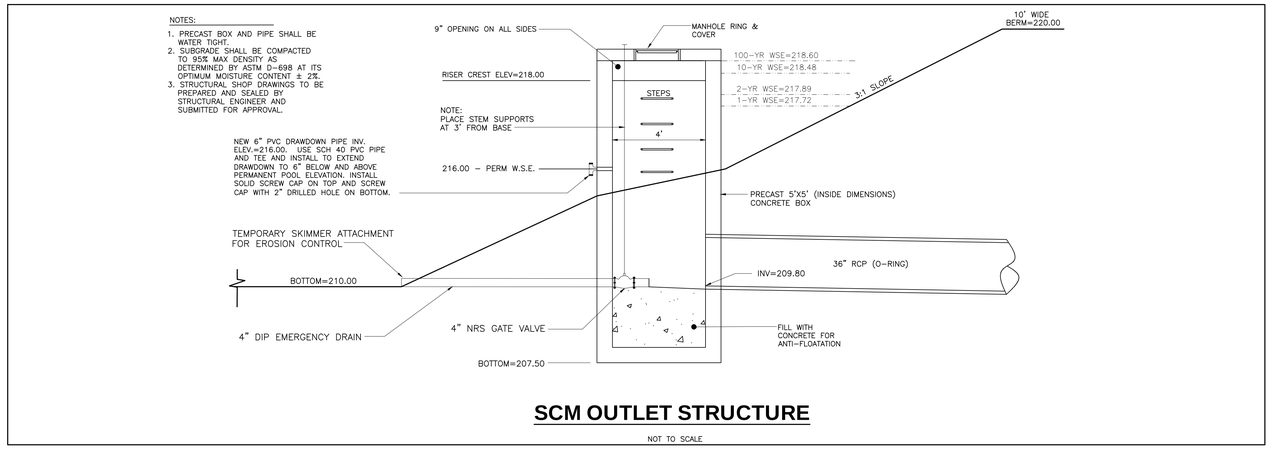
REQUIRED PLANTS BASED ON 2,826 S.F. = 50 PLANTS / 200 S.F. = 707 PLANTS

PLANT TYPE	QTY	BOTANICAL NAME	COMMON NAME	ROOT	SPACING
	236	ASCLEPIAS INCARNATA	SWAMP MILKWEED	2" PLUG	2' O.C.
	236	CAREX TENERA	QUILL SEDGE	2" PLUG	2' O.C.
	235	CHELONE GLABRA	WHITE TURTLEHEAD	2" PLUG	2' O.C.

NON-CLUMPING TURF GRASS MIX OF HYBRID BERMUDA OR CENTIPEDE
PLANTED AT A RATE OF 7 LBS/1000 SF
APPROXIMATE AREA = 7,250 SF

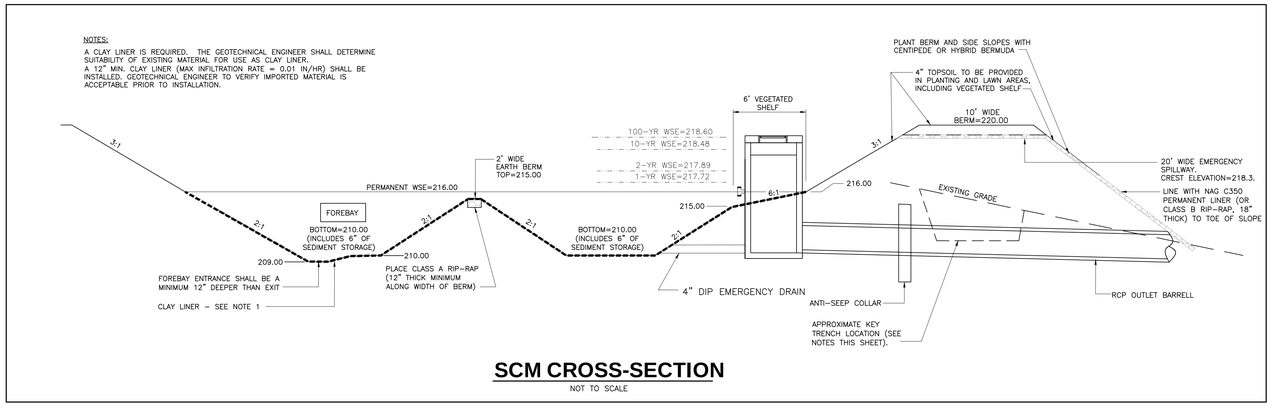
SCM PLANTING/ACCEPTANCE NOTES:

- THE FINAL SCM SHALL BE INSTALLED AND STABILIZED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
- THE APPLICANT SHALL CERTIFY THAT THE COMPLETED PROJECT IS IN ACCORDANCE WITH THE APPROVED STORMWATER MANAGEMENT PLANS AND DESIGNS AND SHALL SUBMIT ACTUAL AS BUILT PLANS FOR ALL STORMWATER MANAGEMENT FACILITIES OR PRACTICES AFTER FINAL CONSTRUCTION IS COMPLETED.
- PRIOR TO CONVERTING THE SCM, SCHEDULE AN INSPECTION WITH THE APPROPRIATE TOWN/COUNTY REPRESENTATIVE TO OBTAIN APPROVAL TO BEGIN THE CONVERSION.
- 90% GERMINATION OF NON-CLUMPING TURF GRASS BE ESTABLISHED ON ALL SLOPES AND EMBANKMENTS PRIOR TO FINAL ACCEPTANCE BY THE TOWN.
- AQUATIC VEGETATION SHALL BE INSTALLED PER THE PLANTING SCHEDULE ON THIS SHEET PROIR TO FINAL ACCEPTANCE.



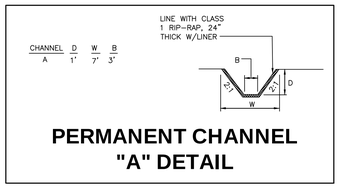
SCM OUTLET STRUCTURE

NOT TO SCALE



SCM CROSS-SECTION

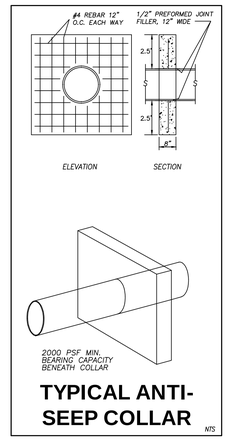
NOT TO SCALE



PERMANENT CHANNEL "A" DETAIL

SCM EMBANKMENT SPECIFICATIONS:

1. ALL FILL MATERIALS TO BE USED FOR THE DAM EMBANKMENT SHALL BE TAKEN FROM BORROW AREAS APPROVED BY THE ON- SITE GEOTECHNICAL ENGINEER. THE FILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, WOOD, STONES GREATER THAN 6", AND FROZEN OR OTHER OBJECTIONABLE MATERIAL.
2. FILL PLACEMENT SHALL NOT EXCEED A MAXIMUM 8" LIFT. EACH LIFT SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF EMBANKMENT. BEFORE PLACEMENT OF FILL FOR THE BERM SECTION, ALL UNSUITABLE MATERIAL SHALL BE REMOVED AND THE SURFACE PROPERLY PREPARED FOR FILL PLACEMENT.
3. ALL FILL SOILS USED IN THE EMBANKMENT / KEY TRENCH CONSTRUCTION SHALL BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM-69B). THE FILL SOILS SHALL BE COMPACTED AT A MOISTURE CONTENT WITHIN 2 PERCENT OF ITS OPTIMUM MOISTURE CONTENT. COMPACTION TESTS SHALL BE PERFORMED BY THE ON- SITE GEOTECHNICAL ENGINEER DURING CONSTRUCTION TO VERIFY THAT THE PROPER COMPACTION LEVEL HAS BEEN REACHED. THE Fill SHOULD BE COMPACTED USING A SHEEPSFOOT TYPE COMPACTOR. IN ORDER TO PREVENT DAMAGE TO THE PIPES, NO COMPACTION EQUIPMENT SHALL CROSS ANY PIPES UNTIL MINIMUM COVER IS ESTABLISHED ALONG THE PIPES.
4. A KEY TRENCH SHALL BE PROVIDED BENEATH ALL FILL AREAS OF THE BERM. THE TRENCH SHALL EXTEND A MINIMUM OF 5 FT BELOW EXISTING GRADE AND SHALL HAVE A MINIMUM BOTTOM WIDTH OF 5 FEET. THE KEY TRENCH SIDE SLOPES SHALL BE A MINIMUM OF 1:1 (H:V). THE KEY TRENCH SHALL BE COMPACTED TO THE SAME SPECIFICATION LISTED IN ITEM 2 ABOVE.
5. FILL MATERIAL ADJACENT TO THE OUTLET BARREL, SHALL MEET THE SPECIFICATIONS LISTED IN ITEMS 1 THROUGH 3 ABOVE. THE CONTRACTOR SHALL PAY SPECIAL ATTENTION TO THE COMPACTION EFFORTS ALONG THE PIPE TO ENSURE THAT ALL SPACES UNDER AND ADJACENT TO THE PIPE ARE FILLED WITH PROPERLY COMPACTED MATERIAL.



TYPICAL ANTI-SEEP COLLAR

NTS

NORTH

0 30 60 90

SCALE IN FEET : 1"=30'

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL SEAL 030856 ENGINEER MICHAEL L. SCHNITKER

06-05-23

LOT 9
HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1 19 APR 2023
PER TOWN COMMENTS
2 05 JUNE 2023
PER TOWN COMMENTS

DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

SCM DETAIL

DWG. NO. **SITE 11**

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TOWN OF KNIGHTDALE REQUIRED ESC PLAN MAINTENANCE NOTES:

1. MAINTENANCE AND/OR CLEAN OUT, IS NECESSARY ANYTIME THE DEVICE IS AT 50% CAPACITY. ALL SEDIMENT STORAGE MEASURES WILL REMAIN ON SITE AND FUNCTIONAL UNTIL ALL GRADING AND FINAL LANDSCAPING OF THE PROJECT IS COMPLETE.

3. AS DESIGNATED BY NCDEQ NCG01 PERMITTING, SELF--INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF 1 INCH OR GREATER. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED.

4. PROVIDE THE MINIMUM MAINTENANCE STANDARDS TAILORED FOR RELEVANT PLAN MEASURES:

SURVEYOR FLAGS/TAPE/STAKES:
--REPLACE IDENTIFIERS IF DAMAGED OR KNOCKED DOWN DURING DEVELOPMENT.
--ENSURE KEY ENVIRONMENTAL AND/OR CULTURAL RESOURCES MAINTAIN IDENTIFIERS. --COLORS SHOULD ADHERE TO THE APWA UNIFORM COLOR CODE. USE ACCEPTED SURVEY SYMBOLS AND ENSURE OPERATORS UNDERSTAND DESIGNATIONS. UTILITY LINE OWNERS/OPERATORS SHALL IDENTIFY THE DESIGNATING FIRM.

PERMITS/NCG01 INSPECTIONS BOX:
--CONFIRM BOX IS SECURELY FASHIONS TO A POST OR WALL IN A VISIBLE LOCATION IN PROXIMITY TO THE CONSTRUCTION ENTRANCE.
--MAINTAIN RELEVANT IDENTIFICATION ON THE EXTERIOR OF THE BOX
--ENSURE PAPER DOCUMENTS REMAIN DRY / LEGIBLE (LAMINATION, TICKET HOLDERS, BINDERS, ETC.)
--REPLACE ANY MISSING DOCUMENTS IMMEDIATELY. CONSIDER PLACING TIES OR FASTENERS IF NECESSARY.

RAIN GUAGE:
--CHECK AND REMOVE ANY ITEMS FROM THE RAIN FUNNEL AND THE DEBRIS FILTER (E.G., DUST, BUGS AND OTHER DEBRIS).
--OPEN THE RAIN GAUGE AND REMOVE ANY FOREIGN OBJECTS.
--PERFORM ROUTINE MAINTENANCE AS SPECIFIED BY THE MANUFACTURER.
--CHECK THAT THE GAUGE IS NOT BEING OBSTRUCTED FROM RAIN CAPTURE AND IS LEVEL BEFORE AND AFTER REASSEMBLY.

TREE PROTECTION FENCE:
--PRUNE ANY DAMAGED TREES. (IF) DAMAGE TO PROTECTED TREES OCCURS, REPAIR ANY DAMAGE TO THE CROWN, TRUNK, OR ROOT SYSTEM IMMEDIATELY.
--REPAIR ROOTS BY CUTTING OFF THE DAMAGED AREAS AND PAINTING THEM WITH TREE PAINT. SPREAD PEAT MOSS OR MOIST TOPSOIL OVER EXPOSED ROOTS.
--REPAIR DAMAGE TO BARK BY TRIMMING AROUND THE DAMAGED AREA, TAPER THE CUT TO PROVIDE DRAINAGE AND PAINT WITH TREE PAINT.
--CUT OFF ALL DAMAGED TREE LIMBS ABOVE THE TREE COLLAR AT THE TRUNK OR MAIN BRANCH. USE THREE SEPARATE CUTS TO AVOID PEELING BARK FROM HEALTHY AREAS OF THE TREE.

SILT FENCE:
--SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
--REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUTS.
--REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

SILT FENCE OUTLET:
--FRESHEN STONE WHEN SEDIMENT ACCUMULATION EXCEEDS 6 INCHES.
--KEEP MESH FREE OF DEBRIS TO PROVIDE ADEQUATE FLOW AND REPLACE STONE AS NEEDED TO FACILITATE DE--WATERING.

CONSTRUCTION ENTRANCE:
--MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2--INCH STONE.
--IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.

SKIMMER:
--CONFIRM SKIMMER IS FUNCTIONAL, INSTALLED IN THE CORRECT ORIENTATION AND HAS MOBILITY TO FLOAT ON TOP OF THE WATER COLUMN.
--ENSURE ROCK PAD STABILIZATION IS PRESENT UNDER THE SKIMMER.
--REPAIR ANY STRUCTURAL DEFICIENCIES (E.G., ORIFICE DISK, FLEX HOSE CONNECTION, VENT FUNCTIONING, CRACKED PVC)

SEDIMENT BASIN:
--BASIN REQUIRES MAINTENANCE WHEN THE INLET ZONE (1ST QUADRANT) HAS BEEN FILLED WITH SEDIMENT.
-- BAFFLE MATERIAL SHALL BE MAINTAINED IN GOOD CONDITION FOR THE LIFE OF THE POND UNTIL REMOVAL OR CONVERSION. ENSURE PROPER MATERIAL USE AND NO SUBSTANDARD MATERIALS ARE IN PLACE INCLUDING:
1. FABRIC SHOULD BE 700 G/M2 COIR EROSION BLANKET OR EQUAL.
2. PRESENCE OF SUPPORT WIRE ACROSS THE TOP WITH APPROPRIATE TIES.
3. THE T--POSTS SHALL WEIGH 1.33 LB/LF AND BE A LENGTH OF AT MINIMUM 5'.

SEDIMENT BASIN / ROLLED EROSION CONTROL PRODUCT:
--INSPECT INITIAL CHANNEL ANCHORING HAS BEEN INSTALLED CORRECTLY, CONFIRM SEGMENTS ARE ROLLED IN CORRECT ORIENTATION.
--ANY AREAS THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
--MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED. BASIN CONVEYANCES / SLOPE DRAIN / RIP--RAP LINED CHANEL
--ANY EROSION OF THE SLOPE, BERM OR OUTLET SHOULD BE REPAIRED IMMEDIATELY TO PREVENT HEAD CUTTING BACK INTO THE SLOPE.
--CONVEYANCE SHOULD BE REFRESHED IF PORE SPACE HAS BEEN COMPROMISED. CLOGGED DRAINS SHOULD BE FLUSHED OUT OR REPLACED.
--ADDITIONAL PERFORMANCE MEASURES MAY BE REQUIRED AT CONVEYANCE ENTRANCE TO SLOW WATER ENTERING THE BASIN.

FILTER BAG / DEWATERING ACTIVITIES:
--ENSURE THE DEWATERING PAD IS IN A GOOD STABILIZED CONDITION.
--PRIOR TO USE INSPECT BAGS FOR ANY DEFECTS. ENSURE PUMP HOE IS SECURE AND A FLOATING INTAKE IS BEING USED (WHEN POSSIBLE).
--FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR INSPECTION AND MAINTENANCE GUIDELINES. REPLACE WHEN TRAPPED SEDIMENT HAS ACCUMULATED TO 50% OF THE BAG CAPACITY OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

TEMPORARY DIVERSION DITCHES / ROLLED EROSION CONTROL PRODUCT:
--ANY AREAS THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED.
--MONITOR AND REPAIR THE RECP AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED. WITH WATTLES / SILT SOCKS
--REMOVE SEDIMENT ACCUMULATION BEHIND MEASURE AS NECESSARY TO PREVENT DAMAGE TO CHANNEL VEGETATION.
--REPLACE WATTLE/SOCK IF CLOGGED OR TORN. REINSTALL PER DETAIL IF DAMAGED OR DISLODGED.
--IF PONDING BECOMES EXCESSIVE, REPLACE WITH A LARGER DIAMETER WATTLE/SOCK OR A DIFFERENT MEASURE. WITH CHECK DAMS REMOVE SEDIMENT ACCUMULATION BEHIND MEASURE AS NECESSARY TO PREVENT DAMAGE TO CHANNEL VEGETATION.
--CHECK FOR EROSION, PIPING, ROCK DISPLACEMENT, AND CORRECT STONE SIZES. REPAIR IMMEDIATELY. CONFIRM WEIR PRESENT AND LOCATED AT THE CENTER OF THE DEVICE.

INLET PROTECTIONS (PIPE / YARD / DROP / CURB):
--INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT.
--KEEP FREE OF DEBRIS TO PROVIDE ADEQUATE FLOW AND IF PRESENT REPLACE STONE AS NEEDED TO FACILITATE DE--WATERING

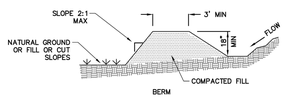
SEEDING SCHEDULE		
MAXIMUM SLOPE 3:1		
SEEDING PERIOD	SEEDING TYPE	APPLICATION RATE (LBS/ACRE)
AUGUST 15 – NOVEMBER 01	TALL FESCUE	300
NOVEMBER 01 – MARCH 01	TALL FESCUE AND	300
	ABRUZZI RYE	25
MARCH 01 – APRIL 15	TALL FESCUE	300
APRIL 15 – JUNE 30	HULLED COMMON BERMUDAGRASS	25
JULY 01 – AUGUST 15	TALL FESCUE AND	120
	*BROWNTOP MILLET OR	35
	*SORGHUM–SUDAN HYBRIDS	30
SLOPES 2:1 TO 3:1		
MARCH 01 – JUNE 01	SERICEA LESPEDEZA (SCARIFIED) AND	50
MARCH 01 – APRIL 15	TALL FESCUE OR	120
MARCH 01 – JUNE 30	WEEPING LOVEGRASS OR	10
	HULLED COMMON BERMUDAGRASS	25
JUNE 01 – SEPTEMBER 01	*TALL FESCUE AND	120
	*BROWNTOP MILLET OR	35
	*SORGHUM–SUDAN HYBRIDS	30
SEPTEMBER 01 – MARCH 01	SERICEA LESPEDEZA (UNHULLED, USCARIFIED) AND	70
	TALL FESCUE OR	120
NOVEMBER 01 – MARCH 01	ABRUZZI RYE	25
*TEMPORARY – RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING, OTHERWISE FESCUE MAY BE SHADED OUT. CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATE COMBINATIONS ARE POSSIBLE.		
GROUND COVER – WHEREVER LAND DISTURBING ACTIVITY IS UNDERTAKEN ON A TRACT COMPRISING MORE THAN ONE (1) ACRE, A GROUND COVER SUFFICIENT TO RESTRAIN EROSION MUST BE PLANTED OR PROVIDED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS.		
GRADED SLOPES AND FILLS – WITHIN 15 WORKING DAYS OR 30 CALENDAR DAYS, OR COMPLETION OF ANY PHASE OF GRADING, WHICHEVER PERIOD IS SHORTER, SLOPES SHALL BE PLANTED OR OTHERWISE PROVIDED WITH GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.		

REVISIONS	
DATE	DESCRIPTION

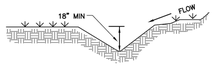
TOWN OF KNIGHTDALE STANDARD DETAILS	SEEDING SCHEDULE	STD. NO. 2.01

NOTES:

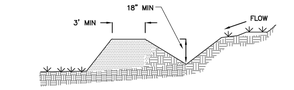
1. MACHINE COMPACTION OF ALL FILL IS REQUIRED. DIVERSIONS SUFFICIENT TO DIRECT ALL SEDIMENT--LADEN STORMWATER INTO A SEDIMENT CONTROL DEVICE MUST BE INSTALLED PRIOR TO CLEARING AND GRUBBING OF THE AREA (OR IN CONJUNCTION WITH THIS OPERATION IF SEDIMENT CONTROLS AND DIVERSIONS ARE INSTALLED AS EACH CRITICAL POINT IS REACHED).
2. DIVERSIONS SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS.
3. DIVERSIONS SHOULD BE SEEDED AND MULCHED IF THEY ARE TO REMAIN IN PLACE OVER 30 DAYS.
4. CHECK DEVICE AFTER EACH RAIN, BUT ONCE A WEEK REGARDLESS. REPAIR AS NECESSARY.



BERM



DITCH



BERM/DITCH

NOTE:

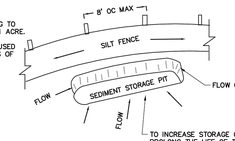
POSITIVE GRADE MUST BE PROVIDED TO ASSURE DRAINAGE. IF SLOPE EXCEEDS 3%, SEED AND MULCH DIVERSION. TRY NOT TO EXCEED 5% (HIGH VELOCITIES RESULT). MAXIMUM LENGTH OF AREA WITH SLOPES WITHOUT SUPPORTING CALCS. DIVERSIONS AT THE TOP OF SLOPES MUST EMPTY INTO AN APPROVED SLOPE DRAIN. BERM/DITCH IS MOST COMMONLY USED.

REVISIONS	
DATE	DESCRIPTION

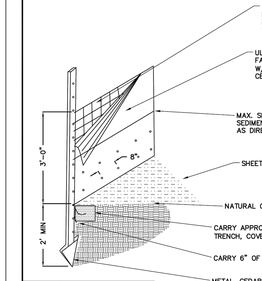
TOWN OF KNIGHTDALE STANDARD DETAILS	TEMPORARY DIVERSION BERM/DITCH	STD. NO. 2.02

NOTES:

1. TOTAL DRAINAGE AREA FLOWING TO SILT FENCE MAY NOT EXCEED 1 ACRE.
2. SILT FENCES SHOULD NOT BE USED AT PIPE OUTLETS OR IN AREAS OF CONCENTRATED FLOW (CREEKS, DITCHLINES, SWELLS ETC.)



TO INCREASE STORAGE CAPACITY AND PROLONG THE LIFE OF THE SILT FENCE, IT IS GENERALLY ADVISABLE TO DIG A SEDIMENT PIT IN FRONT OF YOUR SILT FENCE WHENEVER POSSIBLE.

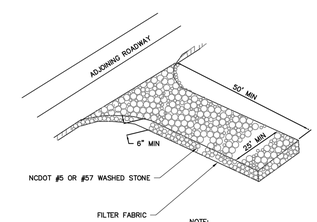


REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TEMPORARY SILT FENCE	STD. NO. 2.03

NOTES:

1. NCDOT # 5 OR #57 WASHED STONE SHALL BE USED. PAD TO BE 50'L X 20'W X 6" D AT A MINIMUM.
2. TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS IS TO BE PROVIDED.
3. ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR MAXIMUM UTILITY BY ALL CONSTRUCTION VEHICLES.
4. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOPDRESSING WITH STONE WILL BE NECESSARY; KEEP SOME HANDY.
5. ANY MATERIAL WHICH STILL MAKES IT ONTO THE ROAD MUST BE CLEANED UP IMMEDIATELY.



NOTE:

APPLICABLE AT ALL POINTS OF INGRESS & EGRESS UNTIL SITE IS STABILIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS	TEMPORARY CONSTRUCTION ENTRANCE/EXIT	STD. NO. 2.04

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

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

SECTION E: GROUND STABILIZATION

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

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

GROUND STABILIZATION SPECIFICATION

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

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

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

EQUIPMENT AND VEHICLE MAINTENANCE

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

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

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

PAINT AND OTHER LIQUID WASTE

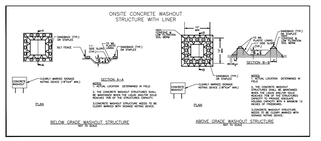
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled,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

PORTABLE TOILETS

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

EARTHEN STOCKPILE MANAGEMENT

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



CONCRETE WASHOUTS

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

HERBICIDES, PESTICIDES AND RODENTICIDES

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

HAZARDOUS AND TOXIC WASTE

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

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

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

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

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

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

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

(a) This General Permit as well as the Certificate of Coverage, after it is received.

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

3. Documentation to be Retained for Three Years

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

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

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

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

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

(d) Anticipated bypasses and unanticipated bypasses.

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

2. Reporting Timeframes and Other Requirements

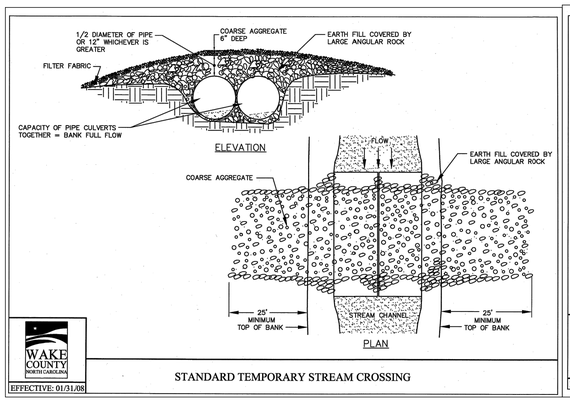
After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental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

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours,*** an oral or electronic notification. • ***Within 7 calendar days,*** a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours,*** an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible.*** The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours,*** an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours,*** an oral or electronic notification. • ***Within 7 calendar days,*** a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

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

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

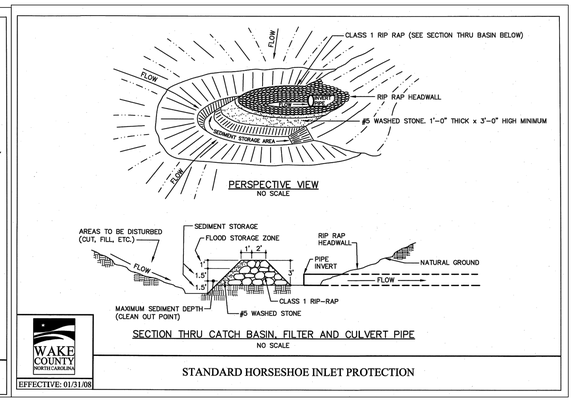
(a) The E&SC plan authority has been provided with documentation of the non-surface withdr



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

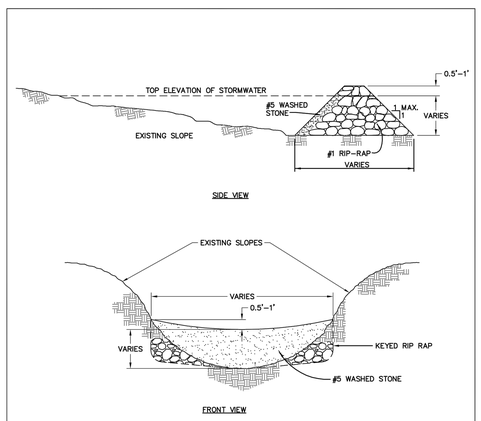
STANDARD TEMPORARY STREAM CROSSING



WAKE COUNTY NORTH CAROLINA

EFFECTIVE: 01/31/08

STANDARD HORSESHOE INLET PROTECTION



DESIGN OF SPILLWAYS

DRAINAGE AREA (ACRES)	MINIMUM WEIR LENGTH (FT)
1	4.0
2	6.0
3	8.0
4	10.0
5	12.0

NOTES:

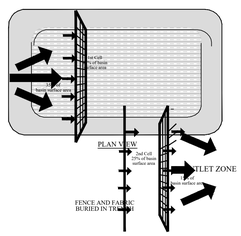
1. HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.
2. KEY RIP RAP INTO THE DAM FOR STABILIZATION.

REVISIONS	
DATE	DESCRIPTION

TOWN OF KNIGHTDALE STANDARD DETAILS

STANDARD CHECK DAM

STD. NO. 2.05

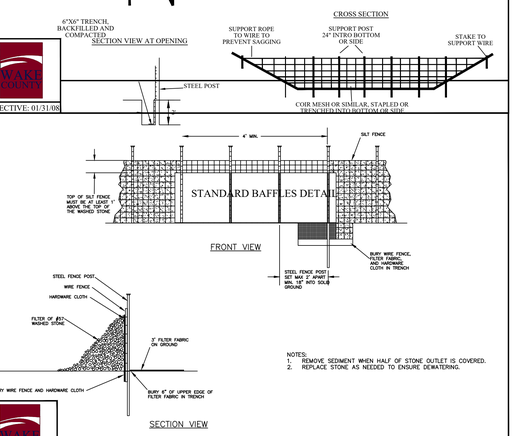


NOTES:

1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE 1ST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3. PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH). PROVIDE 5 BAFFLES FOR DRAINAGE AREAS GREATER THAN 10 ACRES.
4. BAFFLE SHALL BE 700 GSM2 COIR EROSION BLANKET.
5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS
6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL

WAKE COUNTY

EFFECTIVE: 01/31/08



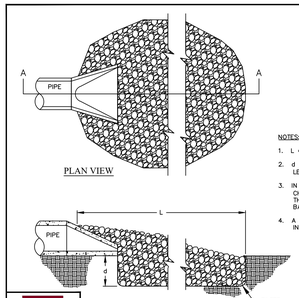
NOTES:

1. REMOVE SEDIMENT WHEN HALF OF STONE OUTLET IS COVERED.
2. REPLACE STONE AS NEEDED TO ENSURE DEWATERING.

WAKE COUNTY

EFFECTIVE: 01/31/08

STANDARD SILT FENCE OUTLET



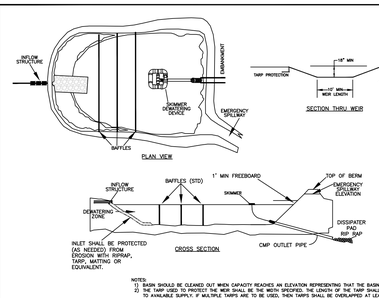
NOTES:

1. L = THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6" (INCHES).
3. IN A WELL-DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" (INCHES) ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

WAKE COUNTY

EFFECTIVE: 01/31/08

STANDARD PIPE OUTLET TO WELL-DEFINED CHANNEL



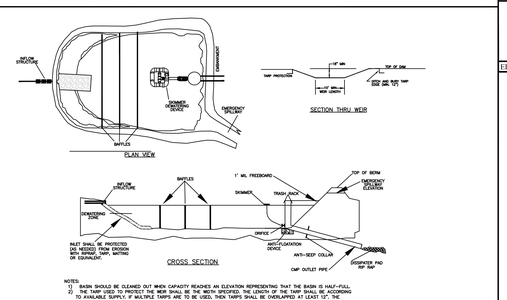
NOTES:

1) BASIN SHOULD BE CLEANED OUT WHEN CAPACITY REACHES AN ELEVATION REPRESENTING THAT THE BASIN IS HALF-FULL.
2) THE TARP USED TO PROTECT THE WEIR SHALL BE THE WIDTH SPECIFIED. THE LENGTH OF THE TARP SHALL BE ACCORDING TO AVAILABLE SUPPLY. IF MULTIPLE TARPS ARE TO BE USED, THEN TARPS SHALL BE OVERLAPPED AT LEAST 12". THE UPSTREAM (1ST TARP SHALL OVERLAP THE DOWNSTREAM TARP. THE TARP SHALL BE 50 MIL. HEAVY DUTY SILVER TARPAULINS OR EQUIVALENT FOR U.V. RESISTANCE.
3) PROVIDE A MINIMUM OF THREE POROUS BAFFLES TO EVENLY DISTRIBUTE FLOW ACROSS THE BASIN, REDUCING TURBULENCE.
4) BAFFLE MATERIAL MUST BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
5) TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS AND SIDES USING STAPLES OR BY TRENCHING AS FOR A SILT FENCE.
6) DURING THE CONSTRUCTION PHASE OF THE PROJECT, PERMANENT STORMWATER RISER SHALL ONLY DEWATER FROM THE TOP OF PIPE.
7) POND SHALL NOT BE CONVERTED FOR STORMWATER USE UNTIL APPROVED BY ENVIRONMENTAL ENGINEER.

WAKE COUNTY

EFFECTIVE: 01/31/08

STANDARD SKIMMER BASIN



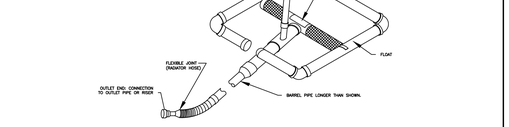
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WAKE COUNTY

EFFECTIVE: 01/31/08

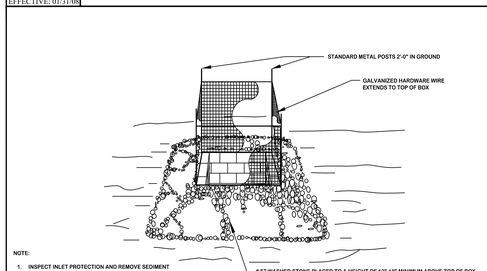
STANDARD SKIMMER ATTACHED TO PERMANENT RISER



WAKE COUNTY

EFFECTIVE: 01/31/08

STANDARD SKIMMER DETAIL



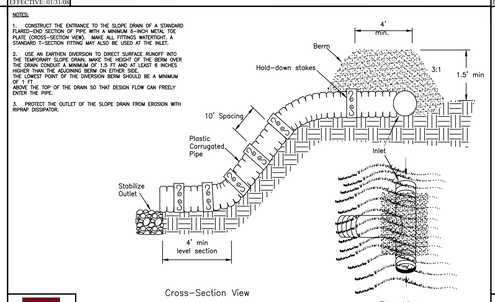
NOTE:

1. INSPECT INLET PROTECTION AND REMOVE SEDIMENT AFTER EACH RAIN EVENT. GRAVEL SHOULD BE REPLACED AND REPAIRS MADE AS NEEDED.

WAKE COUNTY

EFFECTIVE: 01/31/08

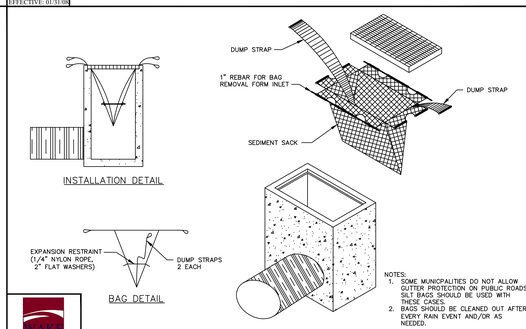
STANDARD GRAVEL YARD INLET PROTECTION



WAKE COUNTY

EFFECTIVE: 01/31/08

STANDARD TEMPORARY SLOPE DRAIN



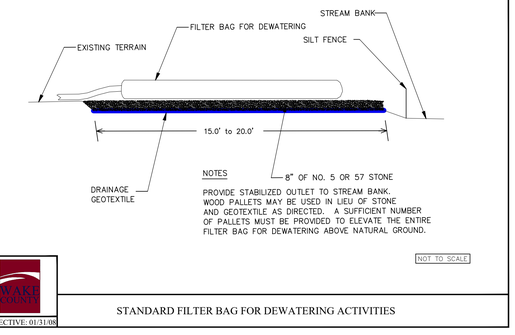
NOTES:

1. SOME MUNICIPALITIES DO NOT ALLOW GUTTER PROTECTION ON PUBLIC ROADS. SILT BAGS SHOULD BE USED WITH THESE CASES.
2. BAGS SHOULD BE CLEANED OUT AFTER EVERY RAIN EVENT AND/OR AS NEEDED.

WAKE COUNTY

EFFECTIVE: 01/31/08

STANDARD SILT BAG - INLET SEDIMENT CONTROL DEVICE

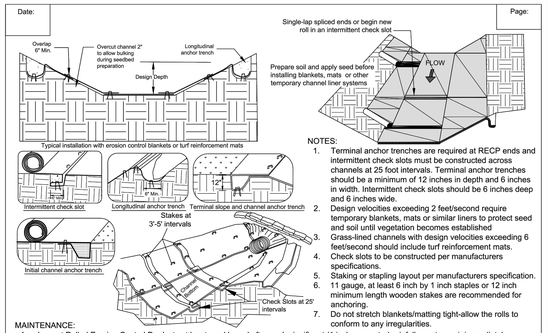


WAKE COUNTY

EFFECTIVE: 01/31/08

STANDARD FILTER BAG FOR DEWATERING ACTIVITIES

Date: Page:



NOTES:

1. Terminal anchor trenches are required at RECP ends and intermittent check slots must be constructed across channels at 25 foot intervals. Terminal anchor trenches should be a minimum of 12 inches in depth and 6 inches in width. Intermittent check slots should be 6 inches deep and 6 inches wide.
2. Design velocities exceeding 2 feet/second require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established
3. Grass-lined channels with design velocities exceeding 6 feet/second should include turf reinforcement mats.
4. Check slots to be constructed per manufacturers specifications.
5. Staking or stapling layout per manufacturers specification.
6. 11 gauge, at least 6 inch by 1 inch staples or 12 inch minimum length wooden stakes are recommended for anchoring.
7. Do not stretch blankets/matting tight-allow the rolls to conform to any irregularities.

MAINTENANCE:

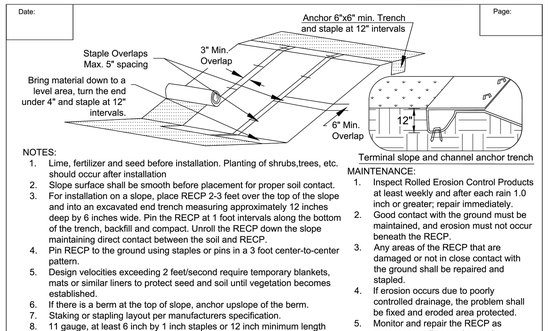
1. Inspect Rolled Erosion Control Products at least weekly and after each significant (1 inch or greater) rainfall event; repair immediately.
2. Good contact with the ground must be maintained, and erosion must not occur beneath the RECP.
3. Any areas of the RECP that are damaged or not in close contact with the ground shall be repaired and stapled.
4. If erosion occurs due to poorly controlled drainage, the problem shall be fixed and the eroded area protected.
5. Monitor and repair the RECP as necessary until ground cover is established.

NORTH CAROLINA Environmental Quality

EFFECTIVE DATE: 11/12/2020

ROLLED EROSION CONTROL PRODUCTS (RECP) FOR CHANNELS

Date: Page:



NOTES:

1. Lime, fertilizer and seed before installation. Planting of shrubs,trees, etc. should occur after installation
2. Slope surface shall be smooth before placement for proper soil contact.
3. For installation on a slope, place RECP 2-3 feet over the top of the slope and into an excavated end trench measuring approximately 12 inches deep by 6 inches wide. Pin the RECP at 1 foot intervals along the bottom of the trench, backfill and compact. Unroll the RECP down the slope maintaining direct contact between the soil and RECP.
4. Pin RECP to the ground using staples or pins in a 3 foot center-to-center pattern.
5. Design velocities exceeding 2 feet/second require temporary blankets, mats or similar liners to protect seed and soil until vegetation becomes established.
6. If there is a berm at the top of slope, anchor upslope of the berm.
7. Staking or stapling layout per manufacturers specification.
8. 11 gauge, at least 6 inch by 1 inch staples or 12 inch minimum length wooden stakes are recommended for anchoring.
9. Do not stretch blankets/matting tight, allow the rolls to conform to any irregularities.
10. For slopes less than 3H:1V, rolls may be placed in horizontal strips.

MAINTENANCE:

1. Inspect Rolled Erosion Control Products at least weekly and after each rain 1.0 inch or greater; repair immediately.
2. Good contact with the ground must be maintained, and erosion must not occur beneath the RECP.
3. Any areas of the RECP that are damaged or not in close contact with the ground shall be repaired and stapled.
4. If erosion occurs due to poorly controlled drainage, the problem shall be fixed and eroded area protected.
5. Monitor and repair the RECP as necessary until ground cover is established.

NORTH CAROLINA Environmental Quality

EFFECTIVE DATE: 11/12/2020

ROLLED EROSION CONTROL PRODUCTS (RECP) FOR SLOPES

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____

Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL SEAL 030856 ENGINEER MICHAEL L. SCHMITZ

06-05-23

LOT 9
HINTON OAKS INDUSTRIAL PARK

0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: 16 MAR 2023

REVISIONS:
1 19 APR 2023 PER TOWN COMMENTS
2 05 JUNE 2023 PER TOWN COMMENTS

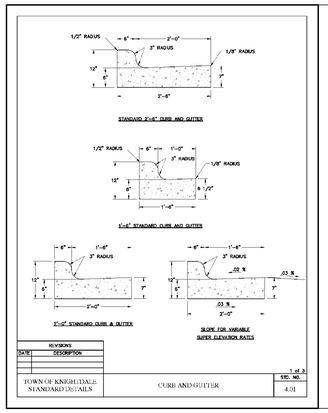
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CHECKED BY: MLS

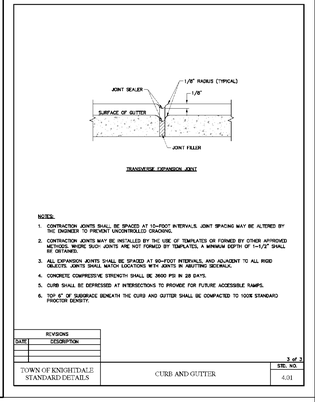
PROJECT: WSHOIPN

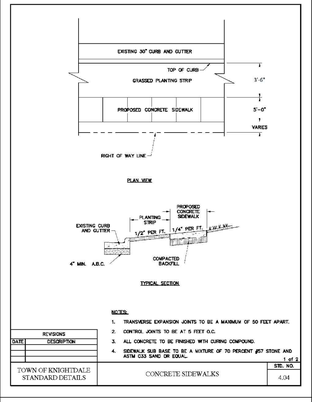
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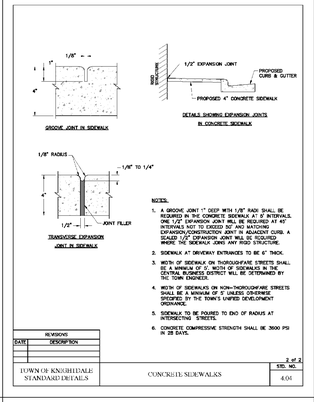
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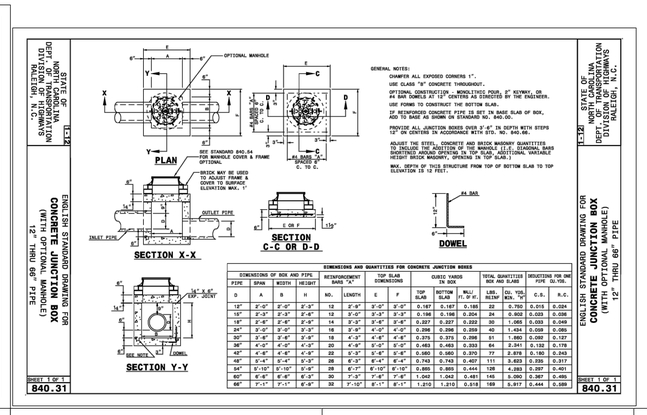
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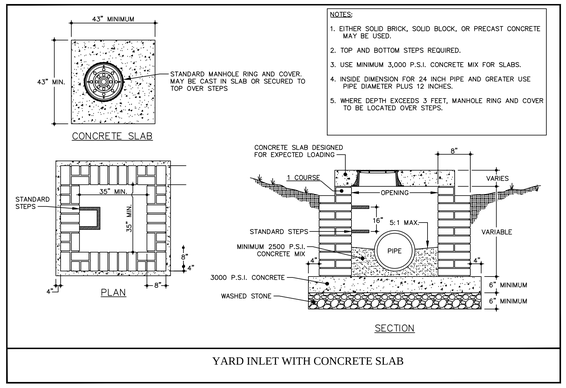


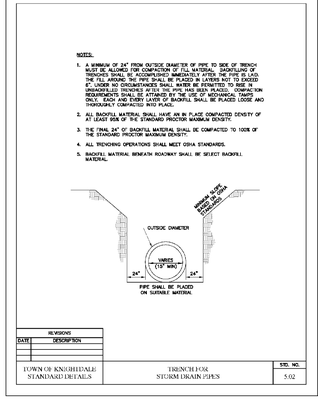


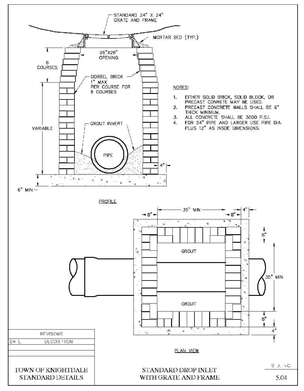


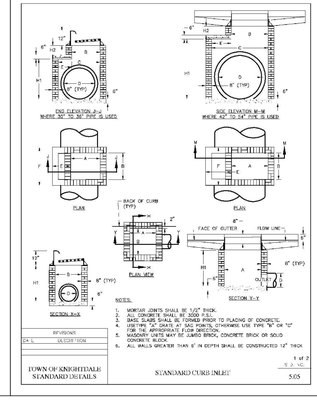


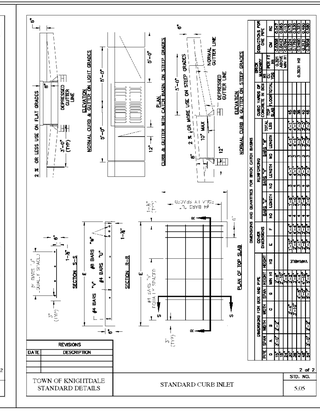


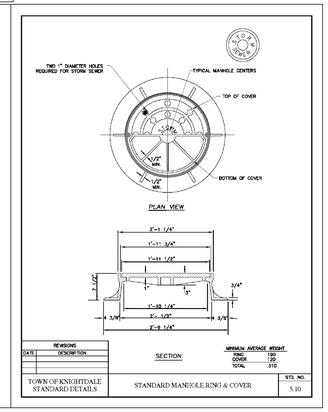


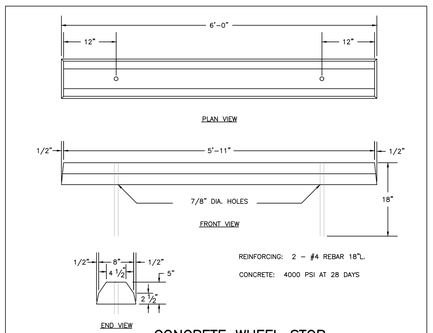


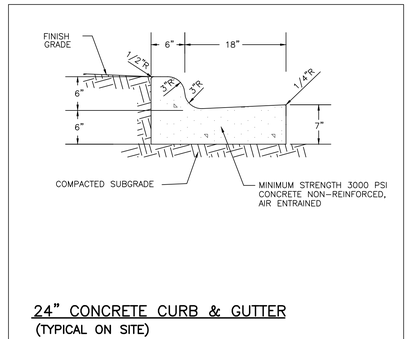


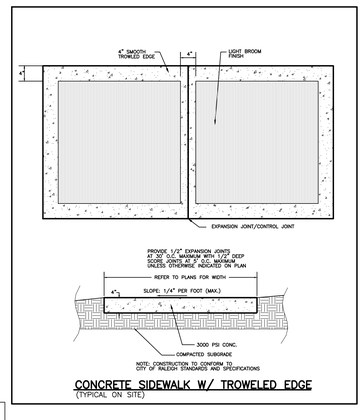


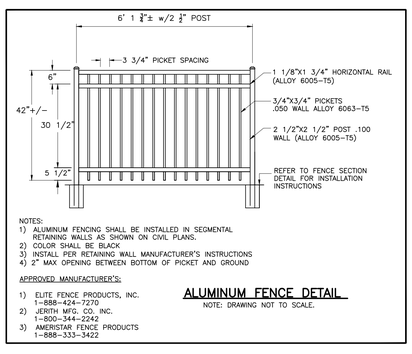


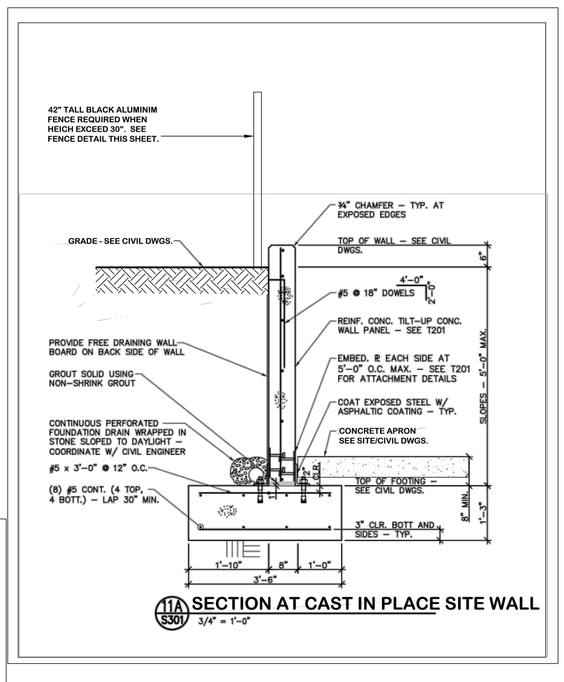


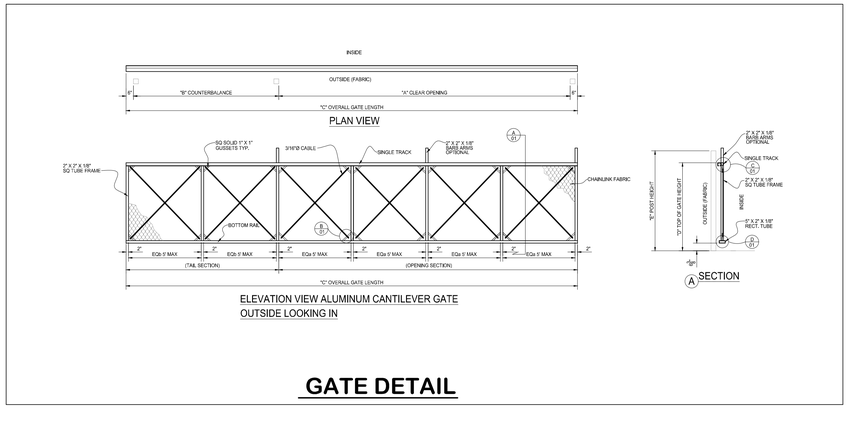


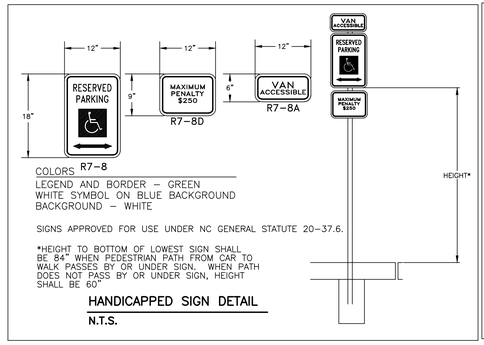


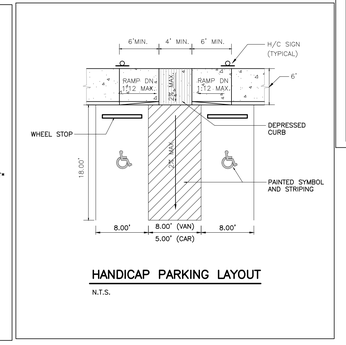












a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Date: _____
Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis Date: _____
Administrator

PLD
PIEDMONT LAND DESIGN, LLP
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919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHMITZ
04-19-23

LOT 9
HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1 19 APR 2023
PER TOWN COMMENTS

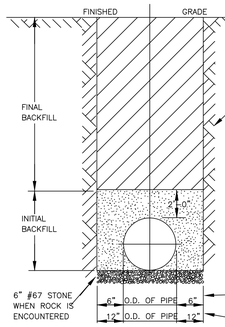
DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

DETAILS

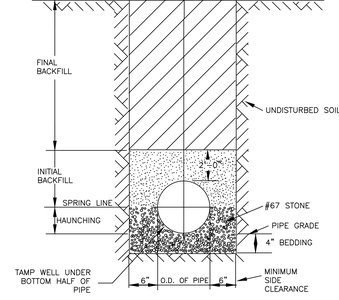
DWG. NO. **SITE 14**

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NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
5. ACHIEVE 80% COMPACTION IN NON-TRAFFIC AREAS, AND 95% COMPACTION IN TRAFFIC AREAS.
6. IF IN EASEMENT 4" TOPSOIL, AND 12" CLEAN SELECT FILL MAY BE REQUIRED.
7. NO BOULDERS 8" IN DIAMETER OR GREATER ALLOWED IN FINAL BACKFILL.

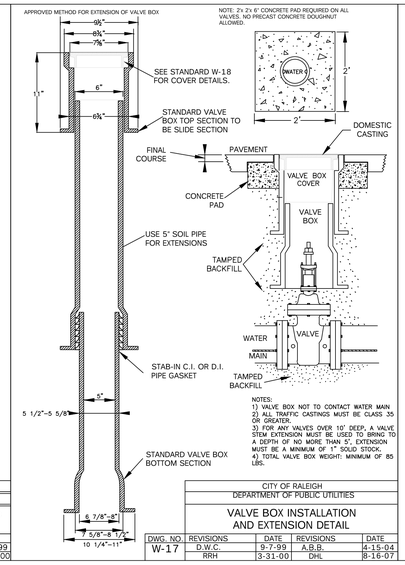
CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-4	D.W.C.	9-3-99		
	RRH	3-30-00		



TYPICAL TRENCH BOTTOM DIMENSIONS FOR SDR 35 PVC GRAVITY PIPE

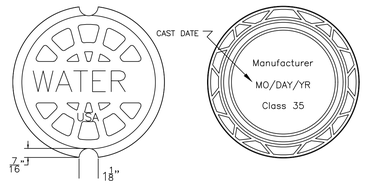
NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TRENCH BOTTOM DIMENSIONS AND BACKFILLING REQUIREMENTS FOR PVC GRAVITY SEWER MAIN				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
S-5	TO NOTES	3-1-87	D.W.C.	9-3-99
		7-2-82	RRH	3-30-00



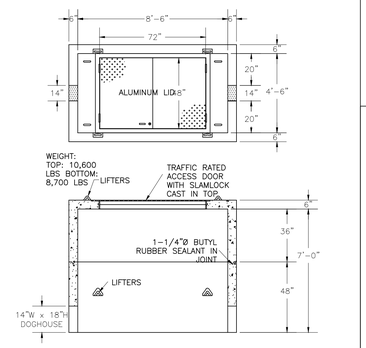
NOTES:
1) VALVE BOX NOT TO CONTACT WATER MAIN
2) ALL TRAFFIC CASTINGS MUST BE CLASS 35 OR GREATER.
3) FOR ANY VALVES OVER 10' DEEP, A VALVE STEM EXTENSION MUST BE USED TO BRING TO A DEPTH OF NO MORE THAN 5', EXTENSION MUST BE A MINIMUM OF 1" SOLID STOCK.
4) TOTAL VALVE BOX WEIGHT: MINIMUM OF 85 LBS.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
VALVE BOX INSTALLATION AND EXTENSION DETAIL				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-17	D.W.C.	9-7-99	A.B.B.	4-15-04
	RRH	3-31-00	DHL	8-16-07



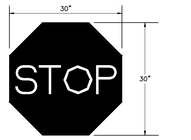
NOTE 1 - 'WATER' LETTERING MUST BE 1" RAISED (RECESSED FLUSH)
NOTE 2 - VALVE COVER SHALL BE DOMESTICALLY CAST.
NOTE 3 - COVER MUST HAVE A MINIMUM WEIGHT OF 25 POUNDS.
NOTE 4 - COVER MUST BE CLASS 35 OR GREATER.
NOTE 5 - COVER MUST MEET OR EXCEED AASHTO H-20 LOAD REQUIREMENTS.

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
5 1/4" VALVE BOX DROP LID WITH 4" SKIRT				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-18				



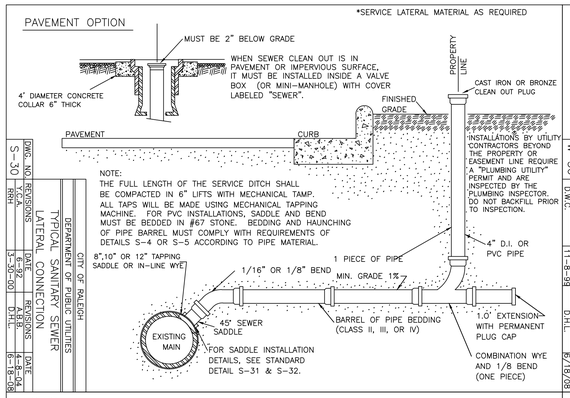
NOTES:
1) REINFORCEMENT: #4 @ 6" OCEW
2) CONCRETE: 4,000 PSI @ 28 DAYS
3) 6" OF #67 STONE SHALL BE PLACED IN BOTTOM OF VAULT
4) METER FLANGE SHALL BE PLACED 49 " BELOW FINISHED GRADE

CITY OF RALEIGH				
DEPARTMENT OF PUBLIC UTILITIES				
TYPICAL 6" THRU 10" WATER METER VAULT				
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-33	A.B.B.	8-26-04		
	D.H.L.	6-18-08		



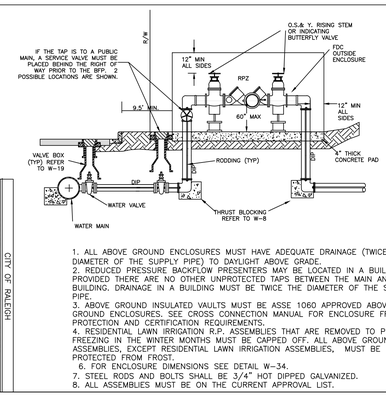
WHITE LEGEND RED BACKGROUND
R1-1
"STOP" SIGN

PAVEMENT OPTION



S-30	DWG. NO.	REVISIONS	DATE
	W-24	A.B.B.	6-92
		D.H.L.	4-96
			1-30-09

TYPICAL SANITARY SEWER LATERAL CONNECTION
DEPARTMENT OF PUBLIC UTILITIES
CITY OF RALEIGH

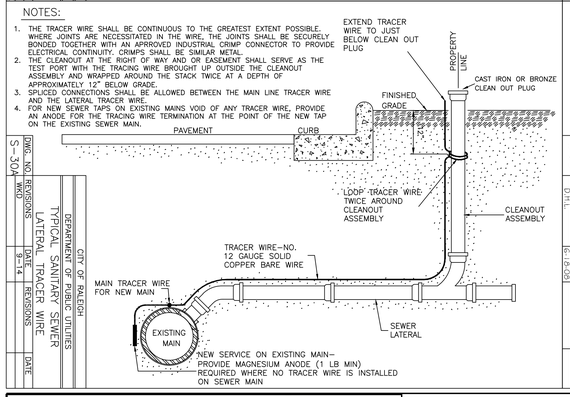


W-34	DWG. NO.	REVISIONS	DATE
	D.W.C.	12-3-98	
	RRH	11-8-99	
	B.B.	6-19-08	
	D.H.L.	10-1-08	

TYPICAL REDUCED PRESSURE ZONE BACKFLOW PREVENTER ASSEMBLY
DEPARTMENT OF PUBLIC UTILITIES
CITY OF RALEIGH

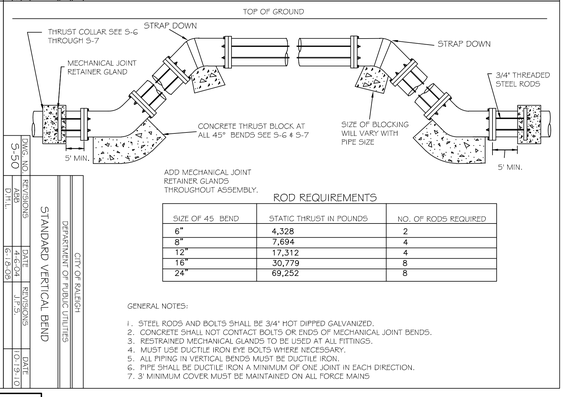
1. ALL ABOVE GROUND ENCLOSURES MUST HAVE ADEQUATE DRAINAGE (TWICE THE DIAMETER OF THE SUPPLY PIPE) TO DAYLIGHT ABOVE GRADE.
2. REDUCED PRESSURE BACKFLOW PRESENTERS MAY BE LOCATED IN A BUILDING PROVIDED THERE ARE NO OTHER UNPROTECTED TAPS BETWEEN THE MAIN AND THE BUILDING. DRAINAGE IN A BUILDING MUST BE TWICE THE DIAMETER OF THE SUPPY PIPE.
3. ABOVE GROUND INSULATED VAULTS MUST BE ASSE 1060 APPROVED ABOVE GROUND ENCLOSURES. SEE CROSS CONNECTION MANUAL FOR ENCLOSURE FREEZE PROTECTION AND CERTIFICATION REQUIREMENTS.
4. RESIDENTIAL LAWN IRRIGATION R.P. ASSEMBLIES THAT ARE REMOVED TO PREVENT FREEZING IN THE WINTER MONTHS MUST BE CAPPED OFF. ALL ABOVE GROUND ASSEMBLIES, EXCEPT RESIDENTIAL LAWN IRRIGATION ASSEMBLIES, MUST BE PROTECTED FROM FROST.
6. FOR ENCLOSURE DIMENSIONS SEE DETAIL W-34.
7. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
8. ALL ASSEMBLIES MUST BE ON THE CURRENT APPROVAL LIST.

NOTES:
1. THE TRACER WIRE SHALL BE CONTINUOUS TO THE GREATEST EXTENT POSSIBLE. WHERE JOINTS ARE NECESSITATED IN THE WIRE, THE JOINTS SHALL BE SECURELY BONDED TOGETHER WITH AN APPROVED INDUSTRIAL CRIMP CONNECTOR TO PROVIDE ELECTRICAL CONTINUITY. CRIMPS SHALL BE SIMILAR METAL.
2. THE CLEANOUT AT THE RIGHT OF WAY AND OR EASEMENT SHALL SERVE AS THE TEST PORT WITH THE TRACING WIRE BROUGHT UP OUTSIDE THE CLEANOUT ASSEMBLY AND WRAPPED AROUND THE STACK TWICE AT A DEPTH OF APPROXIMATELY 12" BELOW GRADE.
3. SPLICED CONNECTIONS SHALL BE ALLOWED BETWEEN THE MAIN LINE TRACER WIRE AND THE LATERAL TRACER WIRE.
4. FOR NEW SEWER TAPS ON EXISTING MAINS VOID OF ANY TRACER WIRE, PROVIDE AN ANODE FOR THE TRACING WIRE TERMINATION AT THE POINT OF THE NEW TAP ON THE EXISTING SEWER MAIN.



S-30A	DWG. NO.	REVISIONS	DATE
	W-10		
		D.H.L.	9-14

TYPICAL SANITARY SEWER LATERAL TRACER WIRE
DEPARTMENT OF PUBLIC UTILITIES
CITY OF RALEIGH



ADD MECHANICAL JOINT RETAINER GLANDS THROUGHOUT ASSEMBLY.

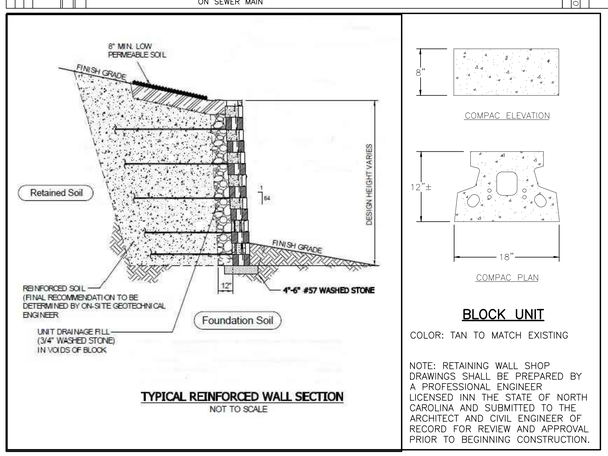
ROD REQUIREMENTS

SIZE OF 45 BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

GENERAL NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. ALL PIPING IN VERTICAL BENDS MUST BE DUCTILE IRON.
6. PIPE SHALL BE DUCTILE IRON A MINIMUM OF ONE JOINT IN EACH DIRECTION.
7. 3' MINIMUM COVER MUST BE MAINTAINED ON ALL FORCE MAINS

S-30B	DWG. NO.	REVISIONS	DATE
	W-36		
		D.H.L.	9-14

STANDARD VERTICAL BEND
DEPARTMENT OF PUBLIC UTILITIES
CITY OF RALEIGH

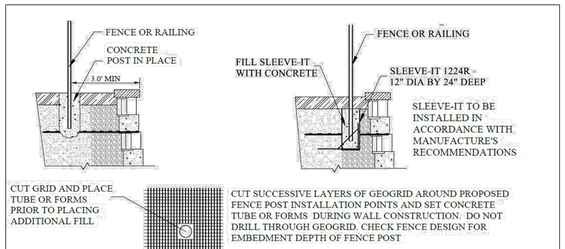


TYPICAL REINFORCED WALL SECTION
NOT TO SCALE

BLOCK UNIT

COLOR: TAN TO MATCH EXISTING

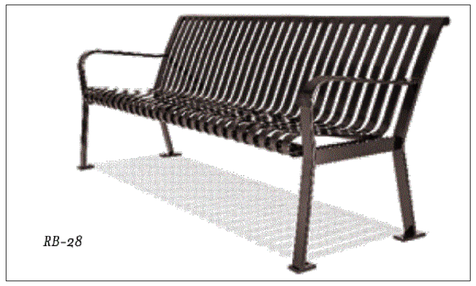
NOTE: RETAINING WALL SHOP DRAWINGS SHALL BE PREPARED BY A PROFESSIONAL ENGINEER LICENSED INN THE STATE OF NORTH CAROLINA AND SUBMITTED TO THE ARCHITECT AND CIVIL ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO BEGINNING CONSTRUCTION.

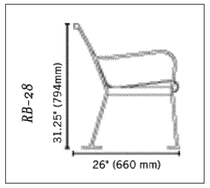


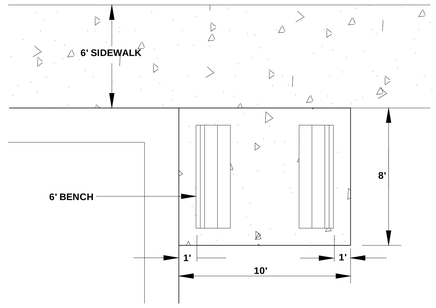
RAILING REQUIREMENTS FOR THE RETAINING WALL SHALL BE DETERMINED BY THE SITE CIVIL ENGINEER AND OWNER. THE RAILING SHOULD BE DESIGNED IN ACCORDANCE WITH THE NORTH CAROLINA BUILDING CODE BY A REGISTERED DESIGN PROFESSIONAL. SUCH THAT IT DOES NOT ADD ANY ADDITIONAL LATERAL FORCES TO THE RETAINING WALL. THE CONCRETE TUBES OR SLEEVE-IT FORMS FOR THE RAILINGS SHALL BE INSTALLED BY THE SITE CONTRACTOR AND COORDINATED WITH THE RETAINING WALL CONTRACTOR DURING CONSTRUCTION OF THE RETAINING WALL.

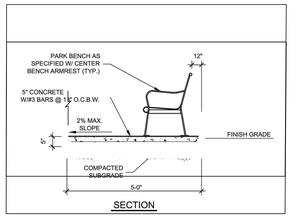
TYPICAL HAND RAILING DETAIL

SCALE: NONE









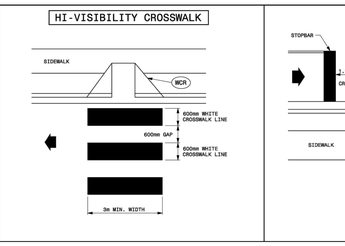
SECTION

GENERAL NOTES:
1. BENCH PAD AND ADJACENT ACCESSIBLE AREA TO HAVE A CROSS SLOPE NOT TO EXCEED 2% IN ANY DIRECTION.
2. UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATIONS, ALL BENCHES TO BE 6'-0" STEELSITES SERIES RB-28 WITH CENTER ARMREST BY VICTOR STANLEY OR APPROVED EQUAL. COLOR SHALL BE RAL 6009.
3. SURFACE MOUNT BENCH TO SLAB W/ CONCRETE ANCHOR PER MANUFACTURER SPECIFICATIONS.

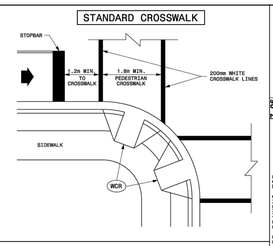
BENCH LAYOUT DETAIL

NTS

HI-VISIBILITY CROSSWALK



STANDARD CROSSWALK



LEGEND
DIRECTION OF TRAFFIC FLOW
WCR WHEELCHAIR RAMP

GENERAL NOTES
1- THE MINIMUM WIDTH OF STANDARD CROSSWALKS IS 1.8 METERS. THE MINIMUM WIDTH OF HI-VISIBILITY CROSSWALKS IS 3 METERS.
2- CENTER CROSSWALKS TO THEIR CORRESPONDING WHEELCHAIR RAMPS, BUT DO NOT SET THEM WITHIN THE INTERSECTION AREA ESTABLISHED BY BISECTING THE INTERSECTION RADII.
3- PLACE STOP BARS A MINIMUM OF 1.2 METERS FROM NEAREST CROSSWALK LINE, BUT NOT WITHIN THE AREA OF A WHEELCHAIR RAMP. PLACE STOP BARS PARALLEL TO CROSSWALK LINES, BUT CAN BE PLACED PERPINDICULAR TO TRAVEL LANES.
4- COORDINATE PLACEMENT OF CROSSWALKS IN ALL CASES WITH THE LOCATION OF WHEELCHAIR RAMPS. (SEE SIGNAL PLANS).

NOTE:
THIS DRAWING IS DIMENSIONED IN MILLIMETRS UNLESS OTHERWISE DEPICTED WITHIN THE DRAWING.

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
7-06
METRIC STANDARD DRAWING FOR PAVEMENT MARKINGS PEDESTRIAN CROSSWALKS
SHEET 1 OF 1
1205.07

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
7-06
METRIC STANDARD DRAWING FOR PAVEMENT MARKINGS PEDESTRIAN CROSSWALKS
SHEET 1 OF 1
1205.07

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must be performed from the plans kept on file with the City. This approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval — Cydney S. Terry — Raleigh Water Review Office

a. **Town Certification.** This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald — Date: _____ — Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis — Date: _____ — Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHMIDT
04-19-23

LOT 9
HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
1 19 APR 2023
PER TOWN COMMENTS

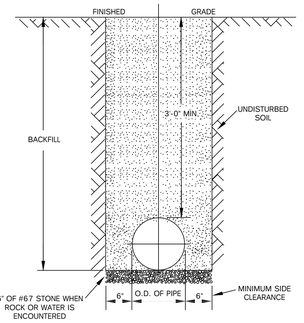
DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

DETAILS

DWG. NO. **SITE 15**

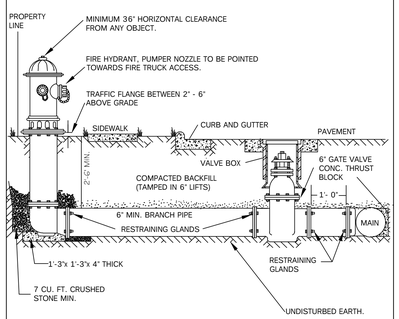
F:\Projects\WSHOIP86L9\Drawings\Site\WSHOIP86L9_sitebase.dwg - 12-16-DETAILS Jun 05, '23 - 10:41am



NOTES:
1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-3	D.W.C.	9-3-99	ABB	2-15-05
	RRH	3-31-00	J.P.S.	10-29-10

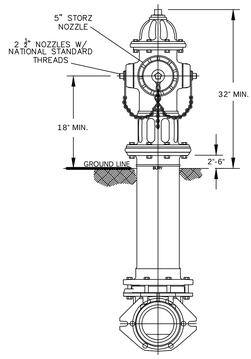


NOTES:
1. FIRE HYDRANT SHALL BE AS MANUFACTURED: MUELLER, AMERICAN DARLING, KENNEDY, M&H, WATEROUS, CLOW, EAST JORDAN IRON WORKS, OR US PIPE.
2. BRANCH PIPE SHALL BE DUCTILE IRON AWWA C150-96
3. 6" GATE VALVE SHALL BE AWWA C500-86 OPEN LEFT
4. STEEL RODS AND BOLTS SHALL BE ⅜" HOT DIPPED GALVANIZED.
5. FIRE HYDRANTS WILL BE INSTALLED IN TRUE VERTICAL POSITION RODS SHALL NOT BE COUPLED MORE THAN ONCE. IF THE LENGTH FROM THE VALVE TO THE HYDRANT EXCEEDS 20' THEN A MECHANICAL RESTRAINING GLAND WITH A REBAR CAGE SHALL BE INSTALLED NO MORE THAN 10' FROM HYDRANT AND POURED IN CONCRETE. FIRE HYDRANTS TO BE LOCATED IN ROW OR 2' FOOT EASEMENT ADJACENT TO ROW

ANYTIME SITE WORK, CONSTRUCTION, ROAD WORK, OR ANY OTHER WORK CHANGES THE GRADE OF THE FIRE HYDRANT, THE PERSON RESPONSIBLE FOR THE WORK IS RESPONSIBLE FOR ADJUSTING THE FIRE HYDRANT TO STAY WITHIN COMPLIANCE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
STANDARD FIRE HYDRANT INSTALLATION DETAIL

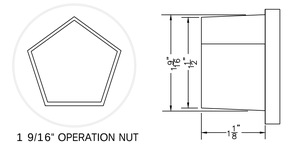
DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-4	ABB	4-6-04	PAP	2/17/09
	DHL	2/14/08		



NOTES:
1. ALL PUBLIC FIRE HYDRANTS IN THE CITY OF RALEIGH AND THE MERGER TOWNS OF GARNER, ROLESVILLE, WAKE FOREST, KNIGHTDALE, WENDELL AND ZEBULON SHALL BE PAINTED CHROME YELLOW WITH HIGH REFLECTIVE ALUMINUM SILVER CAPS, BONNETS AND OPERATING NUTS.
2. ALL PRIVATE FIRE HYDRANTS SHALL BE RED.

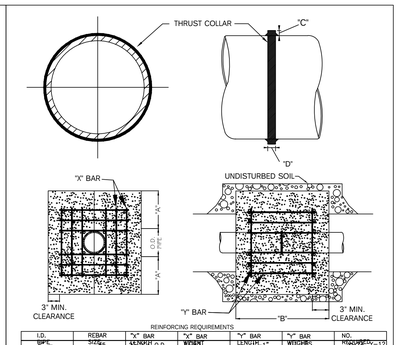
CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
RALEIGH, GARNER, KNIGHTDALE, ROLESVILLE, WAKE FOREST, WENDELL & ZEBULON
STANDARD FIRE HYDRANT WITH 5" STORZ PUMPER NOZZLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-5	MAB	4-30-16		
	KAT	9-15-17		



CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
HYDRANT OPERATING NUT AND 2 1/2" OUTLET THREADS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-6	RRH	3-31-00	DHL	2-18-08
	A.B.B	4-13-04	J.P.S	11-1-10



REINFORCING REQUIREMENTS

I.D.	REBAR SIZE	"X" BAR	"X" BAR	"Y" BAR	"Y" BAR	NO.
8" - 12"	#5	#5@6" O.D. SPACING	#5@6" O.D. SPACING	LENGTH = 1'-3"	WEIGHT = 1'-3" LBS. EACH	4=X-12, Y-12
48" & greater	#6	#6@6" O.D. SPACING	#6@6" O.D. SPACING	LENGTH = 1'-3"	WEIGHT = 1'-7" LBS. EACH	4=X-24, Y-12

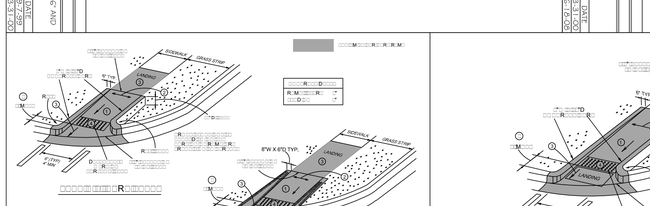
THRUST COLLAR, AND THRUST SCHEDULE

I.D. PIPE	"A"	"B"	"C"	"D"
6" - 16"	1'-4"	1'-7"	2"	3/8"
20" - 24"	1'-4"	1'-7"	3"	1/2"
30" - 36"	1'-4"	1'-7"	4"	5/8"
48" & greater	1'-8"	1'-9"	6"	7/8"

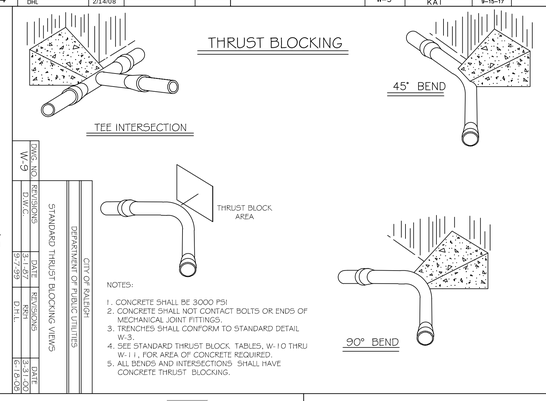
NOTES:
1. SEE STANDARD DETAIL W-9 FOR THRUST BLOCK LOCATIONS.
2. CONCRETE SHALL BE 3000 PSI AND TRANSIT MIXED.
3. REINFORCING BARS SHALL BE DEFORMED AND TIED TOGETHER.
4. TRENCH BOTTOM WIDTH IN VICINITY OF THRUST BLOCK INSTALLATION SHALL BE THE MINIMUM WIDTH AS SHOWN ON STANDARD DETAIL W-3.
5. BACKFILL TAMPED IN 6" LIFTS PER STANDARD DETAIL W-3.
6. THRUST COLLAR MUST BE FACTORY WELDED ON BOTH SIDES ALONG BOTH EDGES OF COLLAR AROUND CIRCUMFERENCE.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN DATA FOR WATER MAINS

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-7	RRH	1-21-00	J.P.S.	
	D.H.L.	6-18-08	11-1-10	

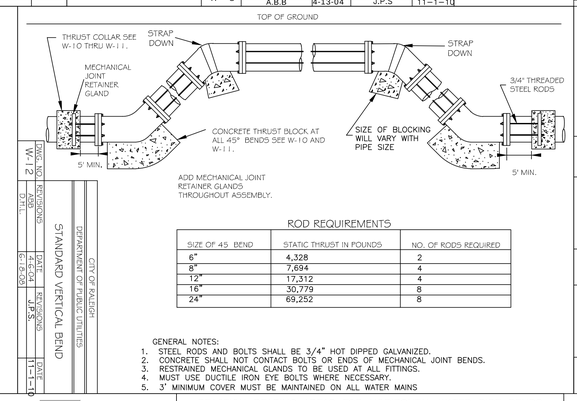


DWG. NO. W-8 | REVISIONS: D.W.C. 9-3-99; RRH 3-31-00 | DATE: 2-15-05 | DEPARTMENT OF PUBLIC UTILITIES | STANDARD THRUST BLOCK INSTALLATION FOR 16" AND LARGER VALVES AND DEAD END MAINS | CITY OF RALEIGH



NOTES:
1. CONCRETE SHALL BE 3000 PSI
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
4. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

DWG. NO. W-9 | REVISIONS: D.W.C. 9-3-99; RRH 3-31-00; D.H.L. 6-18-08 | DATE: 4-6-04 | DEPARTMENT OF PUBLIC UTILITIES | STANDARD THRUST BLOCKING VERTICAL BEND | CITY OF RALEIGH

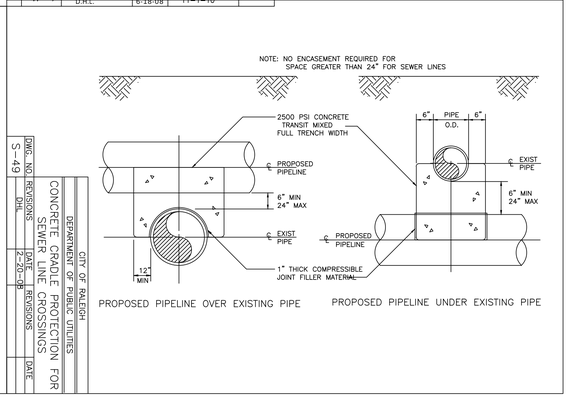


ROD REQUIREMENTS

SIZE OF 45 BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

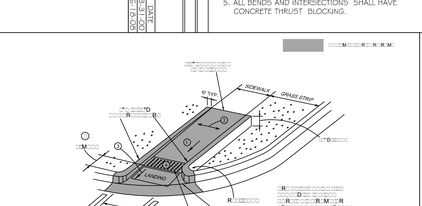
GENERAL NOTES:
1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. 3' MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS

DWG. NO. W-12 | REVISIONS: ABB 4-6-04; D.H.L. 6-18-08 | DATE: 4-6-04 | DEPARTMENT OF PUBLIC UTILITIES | STANDARD VERTICAL BEND | CITY OF RALEIGH

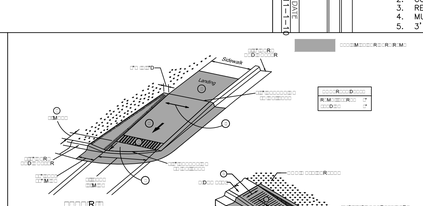


DWG. NO. S-49 | REVISIONS: DHL 2-18-08 | DATE: 2-18-08 | DEPARTMENT OF PUBLIC UTILITIES | CONCRETE CRADLE PROTECTION FOR SEWER LINE CROSSINGS | CITY OF RALEIGH

CITY OF RALEIGH
STANDARD DETAIL
CURB RAMPS (NEW DEVELOPMENT)
T-20.01.2
SHEET 2 OF 5



CITY OF RALEIGH
STANDARD DETAIL
CURB RAMPS (RETROFIT)
T-20.01.4
SHEET 4 OF 5



CITY OF RALEIGH
STANDARD DETAIL
CURB RAMPS
T-20.01.5
SHEET 5 OF 5

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS
BASED ON TEST PRESSURE OF 200 P.S.I.
ALL AREAS GIVEN IN SQUARE FEET.

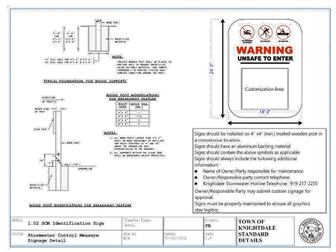
SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4000 LBS/FT²	SOFT CLAY 2000 LBS/FT²	LOOSE LES-ST. GRAVEL, COARSE SAND	GOOD DEPTH DRY CLAY, ROCK DRY	SAND - COMPACT 8000 LBS/FT²	SAND - CLAY 4000 LBS/FT²	SAND LOOSE 1200 LBS/FT² QUICKSAND - WET	ROCK TROUBLED 10,000 LBS/FT²	POOR
6"										
11 1/4°	1,108	1	1	1	1	1	1	2	1	
22 1/2°	2,207	1	2	2	1	1	1	3	1	
45°	4,328	2	3	3	1	1	2	5	1	
90°	7,996	2	4	5	1	1	2	8	1	
PLUG	5,655	2	3	4	1	1	2	6	1	
8"										
11 1/4°	1,970	1	1	2	1	1	1	2	1	
22 1/2°	3,922	1	2	3	1	1	1	4	1	
45°	7,694	2	4	5	1	1	2	8	1	
90°	14,215	4	8	9	2	2	4	15	2	
PLUG	10,053	3	5	6	2	2	3	10	1	
12"										
11 1/4°	4,433	2	3	3	1	1	2	5	1	
22 1/2°	8,826	3	5	6	2	2	3	9	1	
45°	17,312	5	9	11	3	3	5	18	2	
90°	31,983	8	16	19	4	4	8	32	4	
PLUG	22,619	6	12	14	3	3	6	23	3	
16"										
11 1/4°	7,881	2	4	5	1	1	2	8	1	
22 1/2°	15,691	4	8	10	2	2	4	16	2	
45°	30,779	8	16	19	4	4	8	31	4	
90°	56,861	15	29	35	8	8	15	57	6	
PLUG	40,213	10	21	25	5	5	10	41	5	

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 6° - 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

CITY OF RALEIGH
DEPARTMENT OF PUBLIC UTILITIES
THRUST BLOCKING DESIGN QUANTITY TABLE

DWG. NO.	REVISIONS	DATE	REVISIONS	DATE
W-10	D.W.C.	6-23-99		



SCM IDENTIFICATION SIGN

CITY OF RALEIGH - PLANS AUTHORIZED FOR CONSTRUCTION

Electronic Approval: This approval is being issued electronically. This approval is valid only upon signature of a City of Raleigh Review Officer below. The City will retain a copy of the approved plans. Any work authorized by this approval must proceed in accordance with the plans kept on file with the City. This approval may not be edited once issued. Any modification to this approval once issued will invalidate this approval.

City of Raleigh Development Approval: Cydney S. Terry — Digitally signed by Cydney S. Terry — Date: 2023.04.19 08:47:55 -04'00'

Raleigh Water Review Office

a. Town Certification. This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald — Digitally signed by Samuel A. MacDonald — Date: _____

Town Engineer

These plans are approved by the Town of Knightdale and serve as construction plans for this project.

By: Kevin Lewis — Digitally signed by Kevin Lewis — Date: _____

Administrator

PLD
PIEDMONT LAND DESIGN, LLP
8522-204 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27615
919.845.7600 PHONE
919.845.7703 FAX
ENGR. FIRM LICENSE #F-0843

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 030856 MICHAEL L. SCHMITZ

04-19-23

LOT 9
HINTON OAKS INDUSTRIAL PARK
0 HINTON OAKS BOULEVARD
KNIGHTDALE, NORTH CAROLINA

ISSUED: **16 MAR 2023**

REVISIONS:
⚠ 19 APR 2023
PER TOWN COMMENTS

DRAWN BY: **JET**
CHECKED BY: **MLS**

PROJECT: **WSHOIPN**

DETAILS

DWG. NO. **SITE 16**

F:\Projects\WSHOIPB6L9\Drawings\Site\WSHOIPB6L9_sitebase.dwg - 12-16-DETAILS Jun 05, 23 - 10:41am

DUKE ENERGY. PROGRESS

Outdoor Lighting

Roadway LED



The Roadway LED is a green solution and great fit for streets, roads, long, narrow areas and parking lots. This energy-efficient luminaire delivers the light where it is needed while increasing visibility and reducing spill light to adjoining properties. Choose low to medium light output on wood or fiberglass poles (or mount on an existing pole). Available with one to four fixtures per pole, depending on the fixture/pole combination selected.

LED *(Light Emitting Diode)*	50 | 75 | 105 | 150 | 215 | 280 watts
Mounting heights	25, 30, 35'
Color	Gray, Black
Poles	Fiberglass Metal *(special conditions)* Wood

For additional information, visit us at duke-energy.com/OutdoorLighting or call us toll free at 866.769.6417.

DUKE ENERGY. PROGRESS

Outdoor Lighting

Roadway LED

light distribution pattern

Light source: *LED (white)*
Lumens: *4,807 – 25,050 (fixture dependent)*

Wattage	Light Pattern	IESNA Backlight-Uplight – Glare (BUG) Rating
LED 50	IESNA Type III *(medium oval)*	B1-UO-G1
LED 75	IESNA Type II *(long oval)*	B1-UO-G2
LED 105	IESNA Type II *(long oval)*	B2-UO-G3
LED 150	IESNA Type III *(medium oval)*	B2-UO-G2
LED 215	IESNA Type III *(medium oval)*	B3-UO-G3
LED 280	IESNA Type III *(medium oval)*	B3-UO-G4

Color temperature: *4,000K*
Warm-up and restrike time: *Instant on (no warm-up or restrike time)*

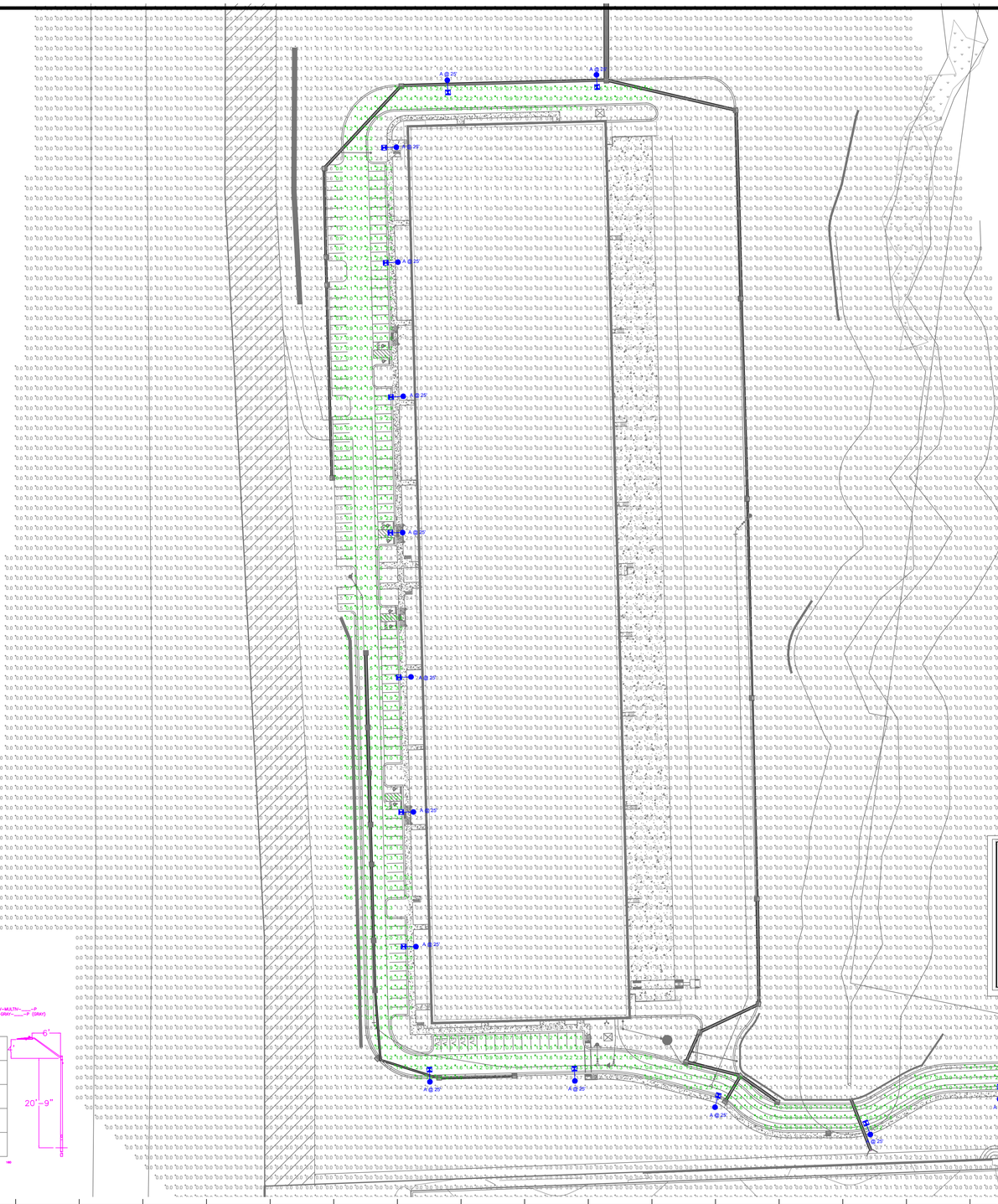
Poles available:

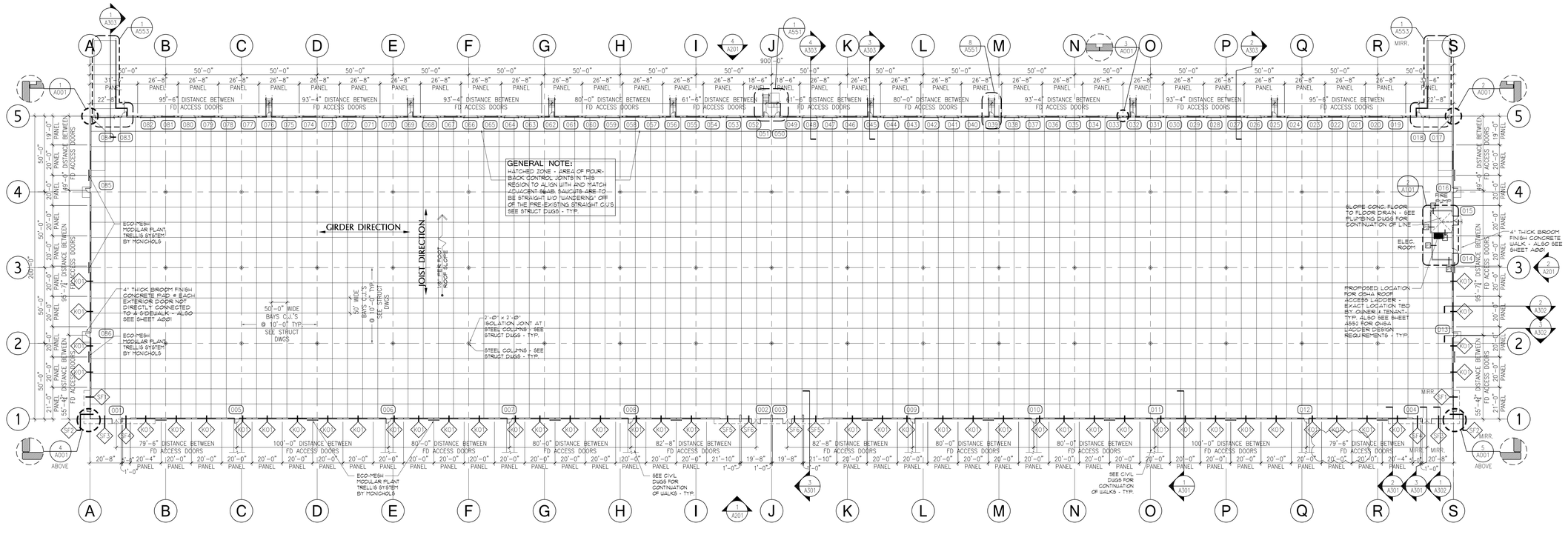
Name	*Mounting height*	*Color*
Fiberglass	25', 30', 35'	Gray
Fiberglass	25', 30', 35'	Black *(additional cost)*
Wood	25', 30', 35'	Standard
Metal *(special conditions)**	25', 30', 35'	Gray

Features	Benefits
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today ... and tomorrow

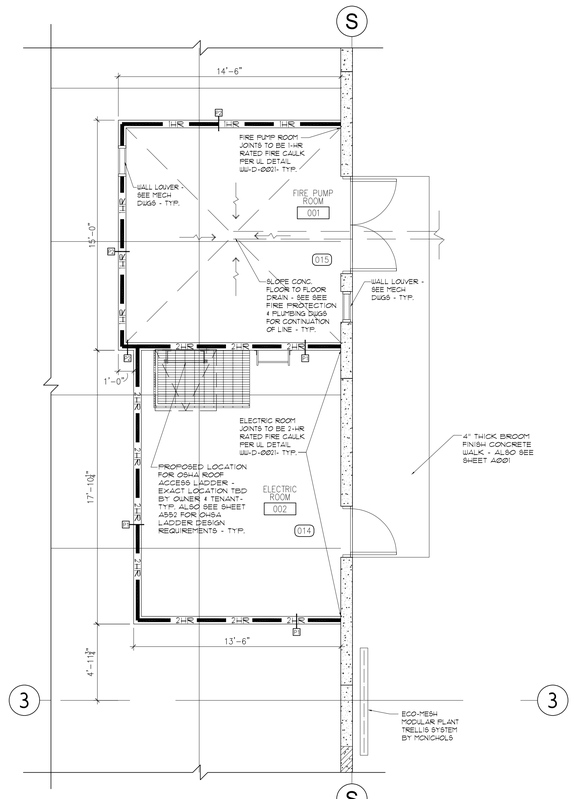
**2' raised foundation available when required.*

©2015 Duke Energy Corporation 181307 3/15


A @ 25'
A @ 25'
A @ 25'



1 FLOOR PLAN
SCALE: 1" = 30'-0"



2 FIRE PUMP ROOM PLAN
SCALE: 1/4" = 1'-0"

FOR SITE APPROVAL ONLY

Town Certification: This design has been reviewed by the Engineer for the Town of Knightdale, and to the best of my knowledge and belief, it conforms to the requirements established in the Standard Specifications of the Town of Knightdale.

By: Samuel A. MacDonald Development Services Engineer

Date: _____

These plans are approved by the Town of Knightdale and serve as construction plans for the project.

By: Kevin Lewis Administrator

Date: _____

MIN. 36' CLEAR UNDER STRUCTURE - TYP.

architects
msa
merriman schmitt
architecture · planning
interior design
605 LEXINGTON AVENUE
SUITE 300
CHARLOTTE, NC 28203
704.377.1177
704.377.3060 (fax)

DEVELOPER / OWNER:

GENERAL CONTRACTOR

SEALS :

MERRIMAN SCHMITT ARCHITECTS, INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 50785 NORTH CAROLINA CHARLOTTE, N.C.

STEPHEN A. SCHMITT REGISTERED ARCHITECT 6479 NORTH CAROLINA CHARLOTTE, NC 02/21/23

SPECULATIVE WAREHOUSE
KNIGHTDALE - 6
HINTON OAKS BLVD.
KNIGHTDALE, NC

DRAWING STATUS :
- ○ PRELIMINARY NOT FOR CONSTRUCTION
- ○ ISSUED FOR BIDDING
- ● ISSUED FOR CONSTRUCTION

OWNER / CLIENT SIGNATURE :

DATE :

MARK	DATE	DESCRIPTION
01	02/21/23	ISSUED FOR CONSTRUCTION

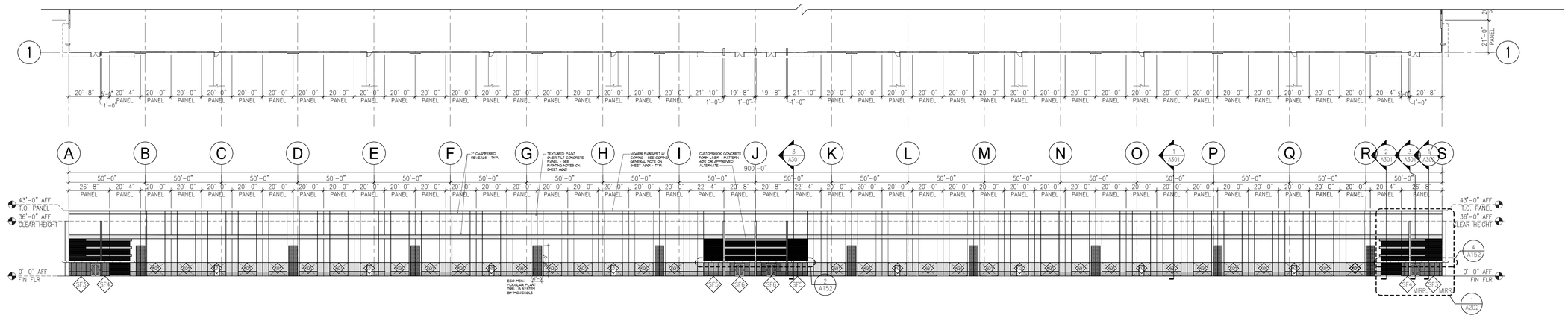
FILE NAME :

PROJECT NO.:
C22167

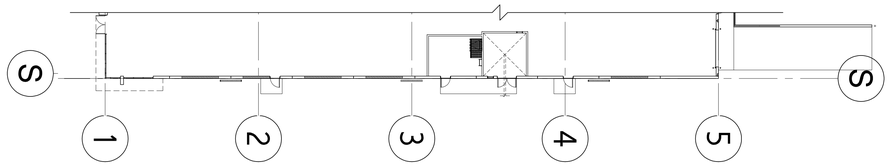
SHEET TITLE :
FLOOR PLAN

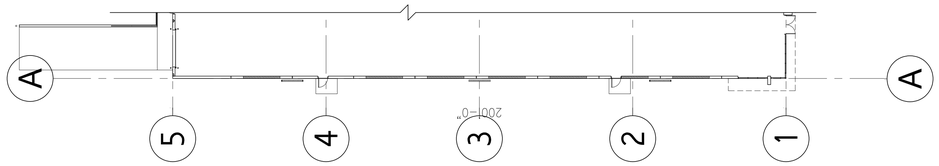
SHEET :
A101

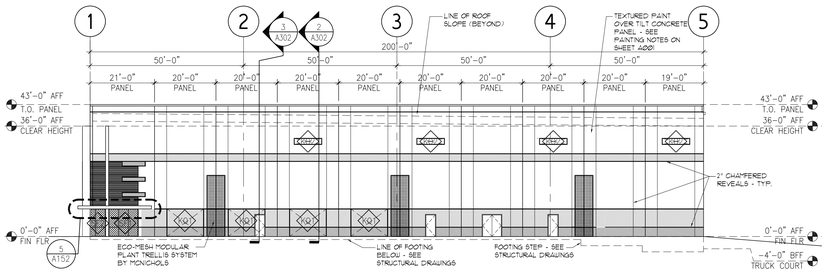
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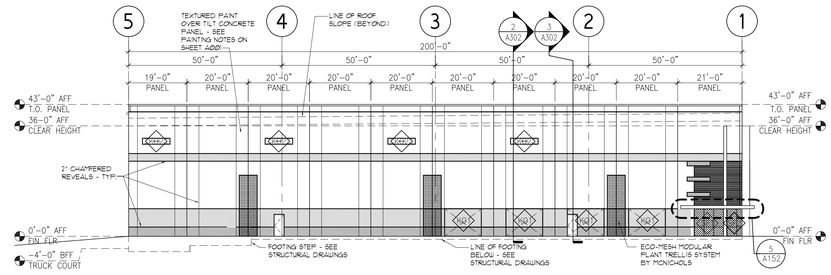
1 FRONT ELEVATION (WEST)
SCALE: 1" = 30'-0"



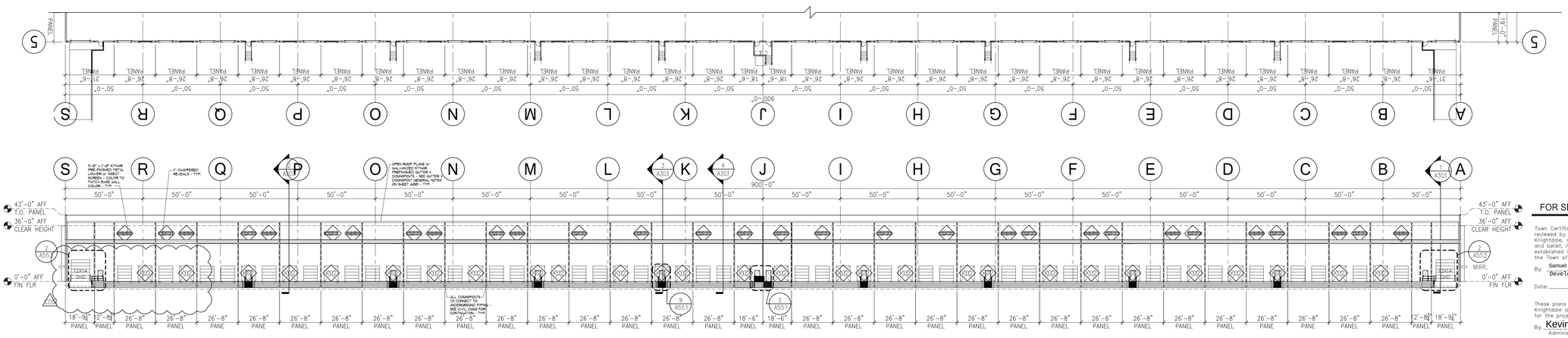




2 SIDE ELEVATION (SOUTH)
SCALE: 1" = 20'-0"



3 SIDE ELEVATION (NORTH)
SCALE: 1" = 20'-0"



4 REAR ELEVATION (EAST)
SCALE: 1" = 30'-0"

MIN. 36' CLEAR UNDER STRUCTURE - TYP.

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CHARLOTTE, NC 28203
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704.377.3060 (fax)

DEVELOPER / OWNER:

GENERAL CONTRACTOR

SEALS :

MERRIMAN SCHMITT ARCHITECTS, INC. REGISTERED ARCHITECTURAL CORPORATION NORTH CAROLINA CHARLOTTE, N.C. CERT. NO. 50785

STEPHEN A. SCHMITT REGISTERED ARCHITECT 6479 NORTH CAROLINA CHARLOTTE, NC 02/28/23

SPECULATIVE WAREHOUSE
KNIGHTDALE - 6
HINTON OAKS BLVD.
KNIGHTDALE, NC

DRAWING STATUS :
- PRELIMINARY NOT FOR CONSTRUCTION
- ISSUED FOR BIDDING
- ISSUED FOR CONSTRUCTION

OWNER / CLIENT SIGNATURE :

DATE :

NO.	DATE	DESCRIPTION
01	02/28/23	ISSUED FOR CONSTRUCTION

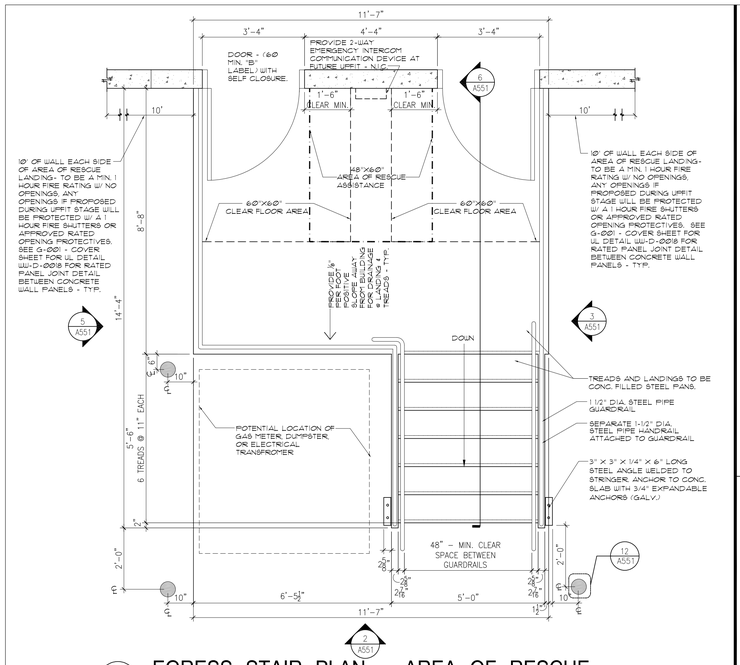
FILE NAME :

PROJECT NO.: C22167

SHEET TITLE : ELEVATIONS

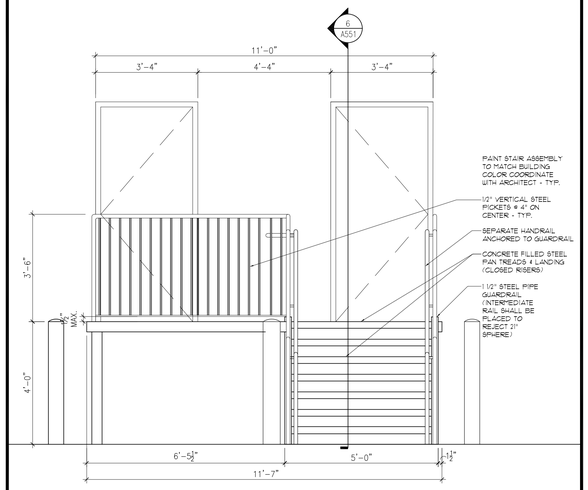
SHEET : A201

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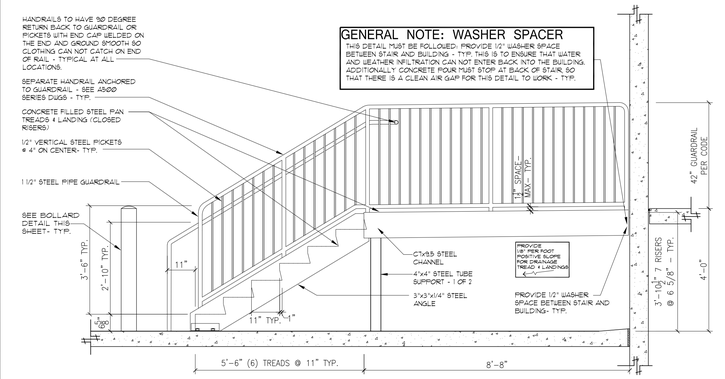
1 EGRESS STAIR PLAN - AREA OF RESCUE

SCALE: 1/2"=1'-0



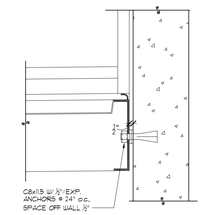
2 EGRESS STAIR ELEVATION

SCALE: 1/2"=1'-0



3 EGRESS STAIR ELEVATION

SCALE: 1/2"=1'-0



4 DOOR SILL DETAIL

SCALE: 1 1/2"=1'-0

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Administrator

Date:

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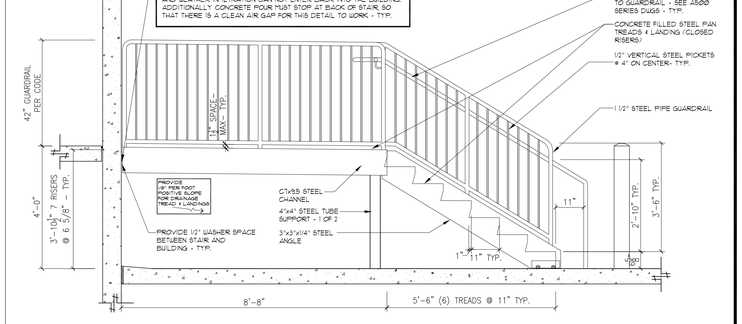
DEVELOPER / OWNER:

GENERAL CONTRACTOR

SEALS :

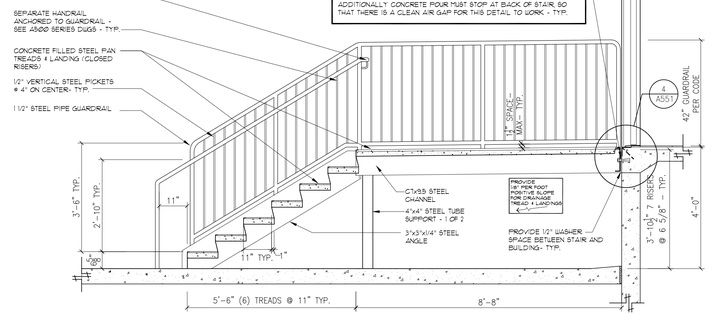
MERRIMAN SCHMITT ARCHITECTS, INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 50785 NORTH CAROLINA CHARLOTTE, N.C.

STEPHEN A. SCHMITT REGISTERED ARCHITECT 6479 NORTH CAROLINA CHARLOTTE 02/28/23



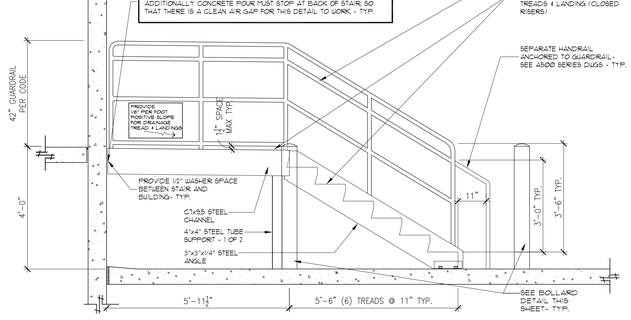
5 EGRESS STAIR ELEVATION

SCALE: 1/2"=1'-0



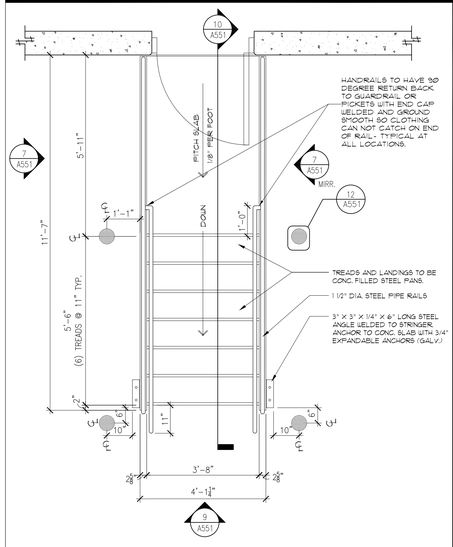
6 EGRESS STAIR SECTION

SCALE: 1/2"=1'-0



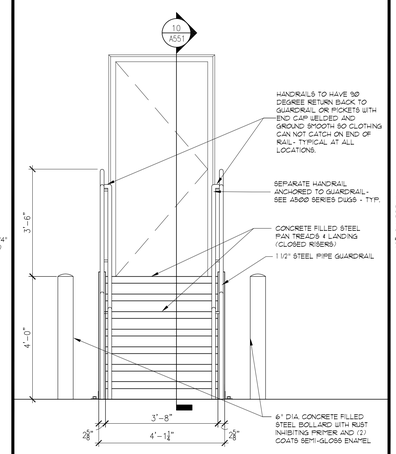
7 STRAIGHT STAIR ELEVATION

SCALE: 1/2"=1'-0



8 STRAIGHT STAIR PLAN

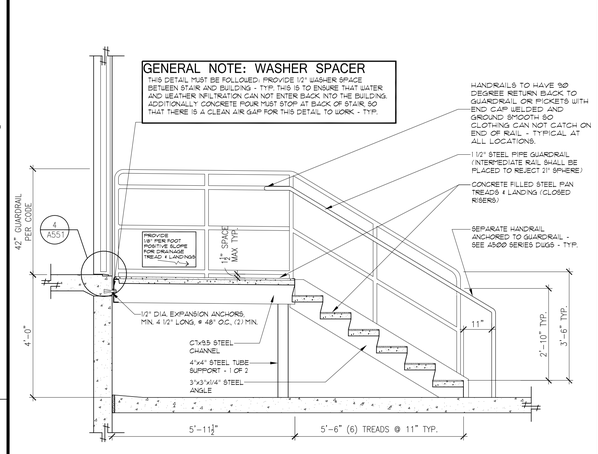
SCALE: 1/2"=1'-0



9 STRAIGHT STAIR ELEVATION

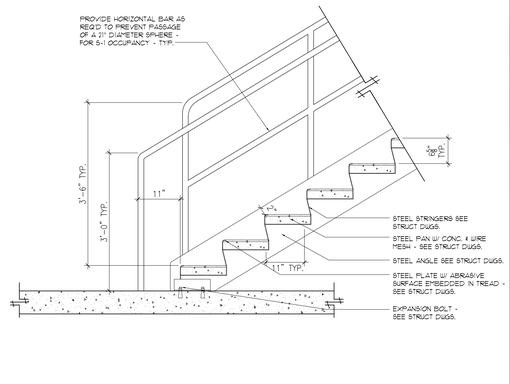
SCALE: 1/2"=1'-0

GENERAL NOTE: GALVANIZED METALS
ALL EXTERIOR STAIRS & HANDRAILS TO BE GALVANIZED METAL W/O A PAINT FINISH - TYP.



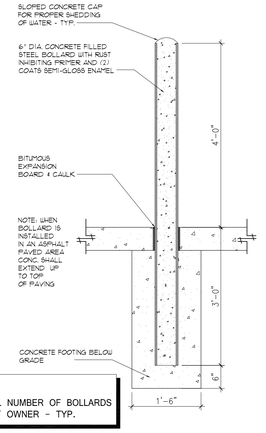
10 STRAIGHT STAIR SECTION

SCALE: 1/2"=1'-0



11 TYPICAL STAIR DETAIL

SCALE: 3/4"=1'-0



NOTE:
VERIFY TOTAL NUMBER OF BOLLARDS REQUIRED W/ OWNER - TYP.

12 TYPICAL BOLLARD DETAIL

SCALE: 3/4"=1'-0

MIN. 36' CLEAR UNDER STRUCTURE - TYP.

SPECULATIVE WAREHOUSE
KNIGHTDALE - 6
HINTON OAKS BLVD.
KNIGHTDALE, NC

DRAWING STATUS :
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- ISSUED FOR CONSTRUCTION

OWNER / CLIENT SIGNATURE :

DATE :

MARK	DATE	DESCRIPTION
01	02/28/23	ISSUED FOR CONSTRUCTION

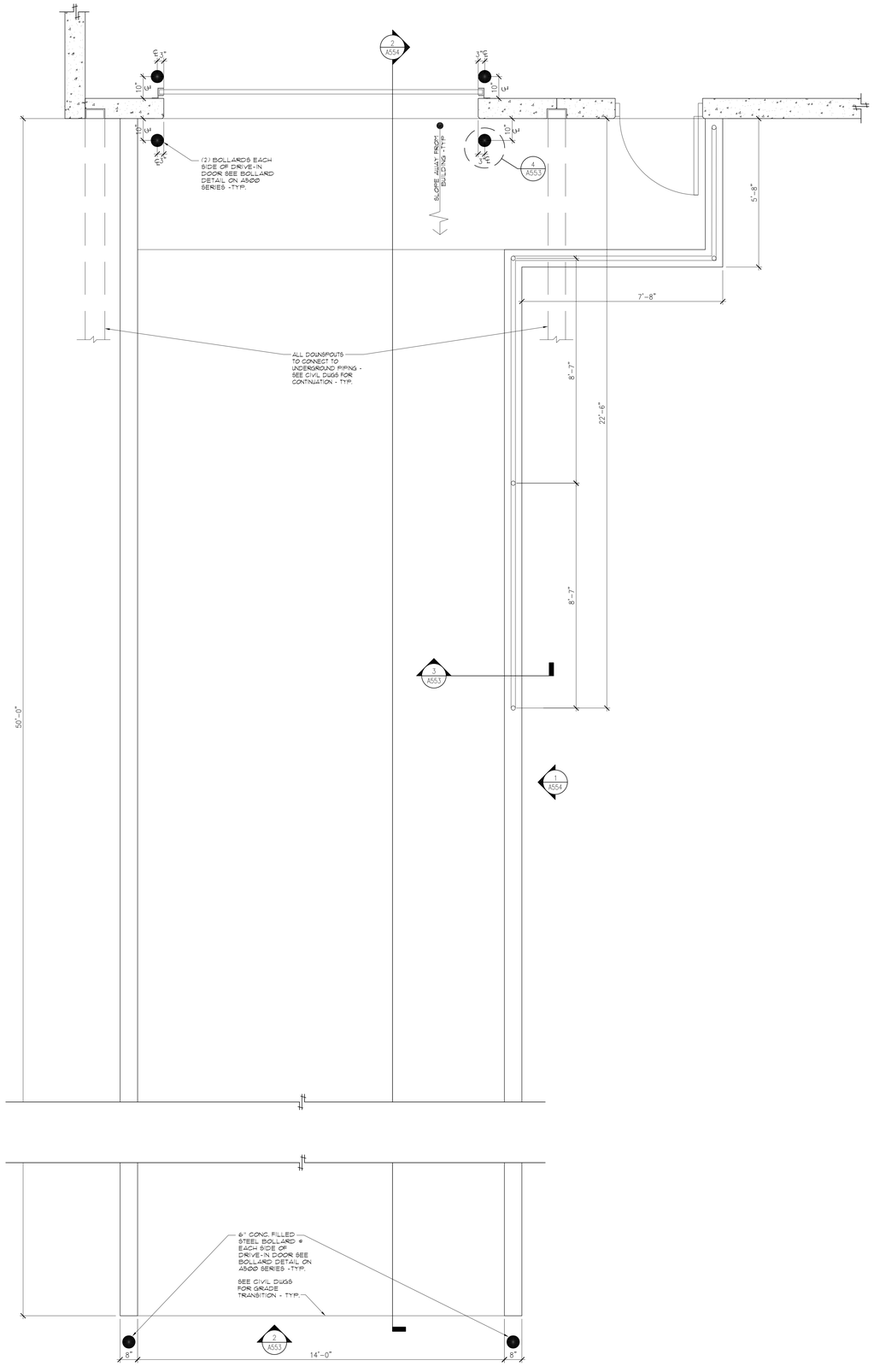
FILE NAME :

PROJECT NO.: C22167

SHEET TITLE : STAIR DETAILS

SHEET : A551

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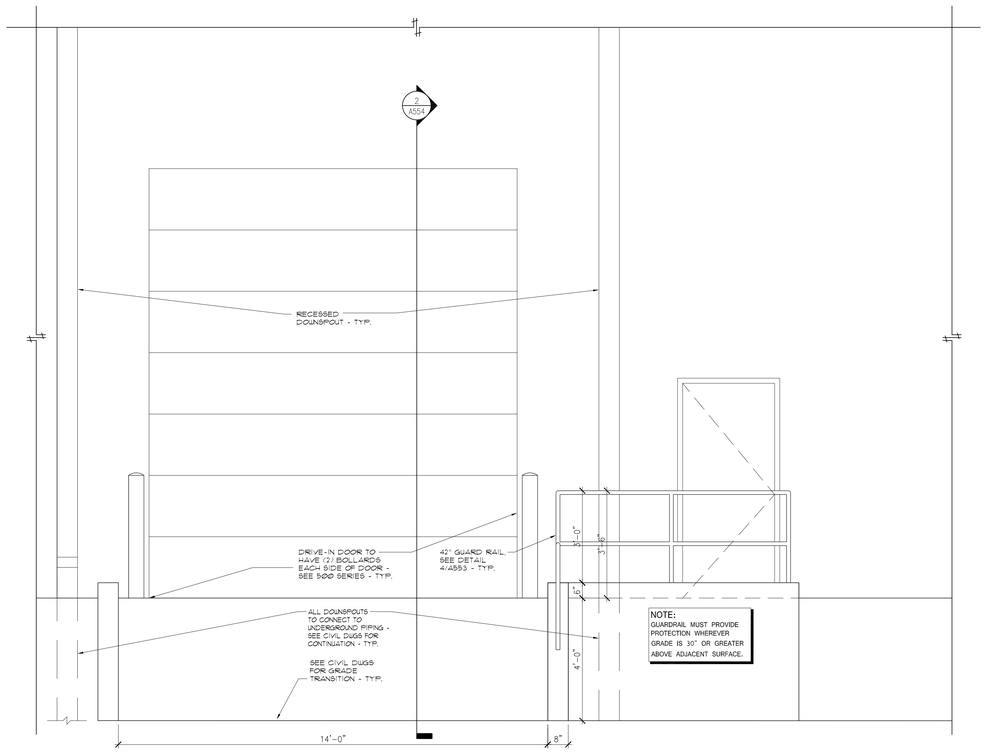


1 RETAINING WALL & GUARDRAIL DETAILS

SCALE: 1/2"=1'-0 OPPOSITE RAMP MIRRORED - TYP.

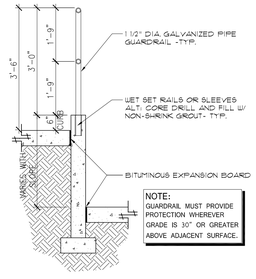
GENERAL NOTE: PAINTING OF METALS

ALL EXPOSED METALS TO BE PAINTED ENTIRELY WITH RUST INHIBITING GRAY PRIMER AND (2) COATS OF SEMI GLOSS EPOXY - COLOR AS SELECTED BY ARCHITECT - TYP.



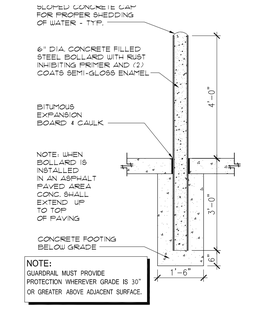
2 RAMP ELEVATION

SCALE: 1/2"=1'-0



3 GUARD RAIL DETAIL

SCALE: 1/2"=1'-0



4 BOLLARD DETAIL

SCALE: 1/2"=1'-0

FOR SITE APPROVAL ONLY

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Date: _____

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Administrator

Date: _____

MIN. 36' CLEAR UNDER STRUCTURE - TYP.

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CHARLOTTE, NC 28203
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704.377.3060 (fax)

DEVELOPER / OWNER:

GENERAL CONTRACTOR

SEALS :

MERRIMAN SCHMITT ARCHITECTS, INC. REGISTERED ARCHITECTURAL CORPORATION NORTH CAROLINA CERT. NO. 50785 CHARLOTTE, N.C.

STEPHEN A. SCHMITT REGISTERED ARCHITECT 6479 NORTH CAROLINA CHARLOTTE, NC 02/28/23

SPECULATIVE WAREHOUSE
KNIGHTDALE - 6
HINTON OAKS BLVD.
KNIGHTDALE, NC

DRAWING STATUS :

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- ○ ISSUED FOR CONSTRUCTION

OWNER / CLIENT SIGNATURE :

DATE :

MARK	DATE	DESCRIPTION
01	02.28.23	ISSUED FOR CONSTRUCTION

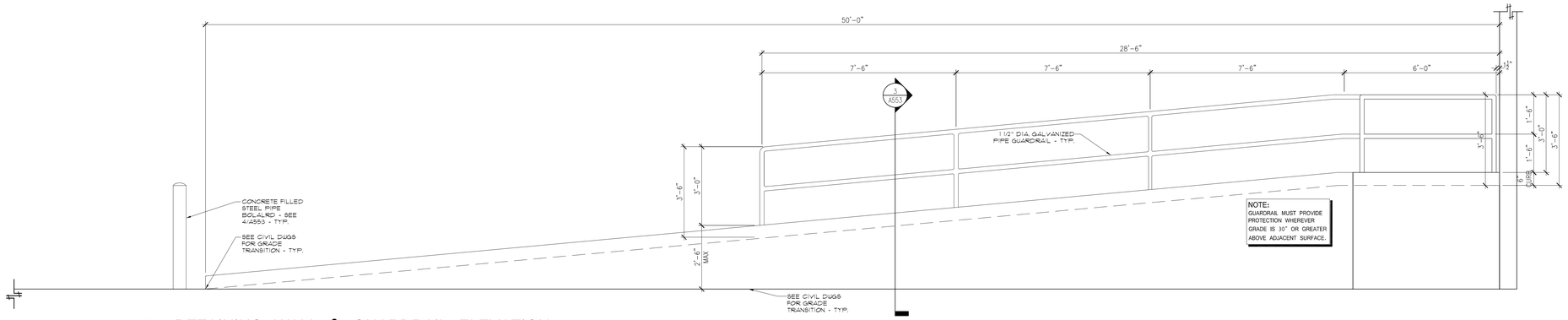
FILE NAME :

PROJECT NO.: C22167

SHEET TITLE : DRIVE-IN RAMP DETAILS

SHEET : A553

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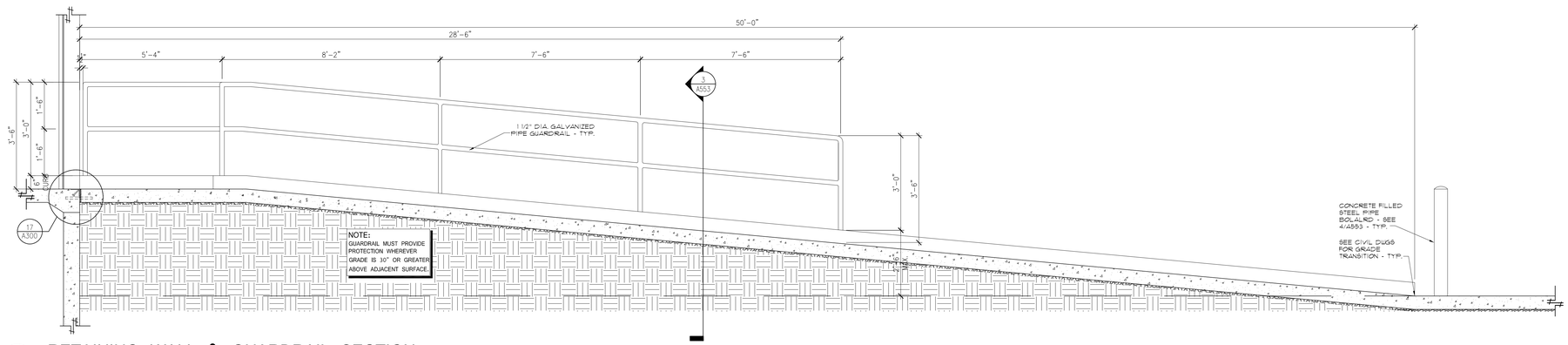


1 RETAINING WALL & GUARDRAIL ELEVATION

SCALE: 1/2"=1'-0 OPPOSITE RAMP MIRRORED - TYP.

GENERAL NOTE: PAINTING OF METALS

ALL EXPOSED METALS TO BE PAINTED ENTIRELY WITH RUST INHIBITING GRAY PRIMER AND (2) COATS OF SEMI GLOSS EPOXY - COLOR AS SELECTED BY ARCHITECT - TYP.



2 RETAINING WALL & GUARDRAIL SECTION

SCALE: 1/2"=1'-0

MIN. 36' CLEAR UNDER STRUCTURE - TYP.

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STEPHEN A. SCHMITT REGISTERED ARCHITECT 6479 NORTH CAROLINA CHARLOTTE, NC 02/28/23

SPECULATIVE WAREHOUSE 6
KNIGHTDALE - E
HINTON OAKS BLVD.
KNIGHTDALE, NC

DRAWING STATUS :

- ● PRELIMINARY NOT FOR CONSTRUCTION
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- ○ ISSUED FOR CONSTRUCTION

OWNER / CLIENT SIGNATURE :

DATE :

MARK	DATE	DESCRIPTION
01	02/28/23	ISSUED FOR CONSTRUCTION

FILE NAME :

PROJECT NO.: C22167

SHEET TITLE : DRIVE-IN RAMP DETAILS

SHEET : A554

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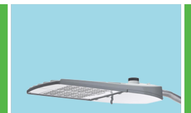
FIXTURE: LED 150 - AEL
MOUNTING HEIGHT: 25 FT
LIGHT SOURCE: 40 LED'S, 4000K, 70 CRI
LUMENS - 16461
PATTERN: TYPE IV, B3-U0-G3 (zero light at or above 90 degrees)

NOTE: THE FOOTCANDLE READINGS ARE MAINTAINED AND HAVE BEEN DEPRECIATED FOR LED LUMEN DEPRECIATION AND LUMINAIRE DIRT DEPRECIATION. FOR INITIAL FOOTCANDLES, DIVIDE THE READINGS BELOW BY .85.

DUKE ENERGY. PROGRESS

Outdoor Lighting

Roadway LED



The Roadway LED is a green solution and great fit for streets, roads, long, narrow areas and parking lots. This energy-efficient luminaire delivers the light where it is needed while increasing visibility and reducing spill light to adjoining properties. Choose low to medium light output on wood or fiberglass poles (or mount on an existing pole). Available with one to four fixtures per pole, depending on the fixture/pole combination selected.

LED *(Light Emitting Diode)*	50 | 75 | 105 | 150 | 215 | 280 watts
Mounting heights	25', 30', 35'
Color	Gray, Black
Poles	Fiberglass Metal *(special conditions)* Wood

For additional information, visit us at
duke-energy.com/OutdoorLighting
or call us toll free at **866.769.6417**.

DUKE ENERGY. PROGRESS

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Light source: LED *(white)*
Lumens: 4,807 – 25,050 *(fixture dependent)*

Wattage	Light Pattern	IESNA Backlight-Uplight – Glare (BUG) Rating
LED 50	IESNA Type III *(medium oval)*	B1-U0-G1
LED 75	IESNA Type II *(long oval)*	B1-U0-G2
LED 105	IESNA Type II *(long oval)*	B2-U0-G3
LED 150	IESNA Type III *(medium oval)*	B2-U0-G2
LED 215	IESNA Type III *(medium oval)*	B3-U0-G3
LED 280	IESNA Type III *(medium oval)*	B3-U0-G4



light distribution pattern

Color temperature: 4,000K
Warm-up and restrike time: Instant on *(no warm-up or restrike time)*

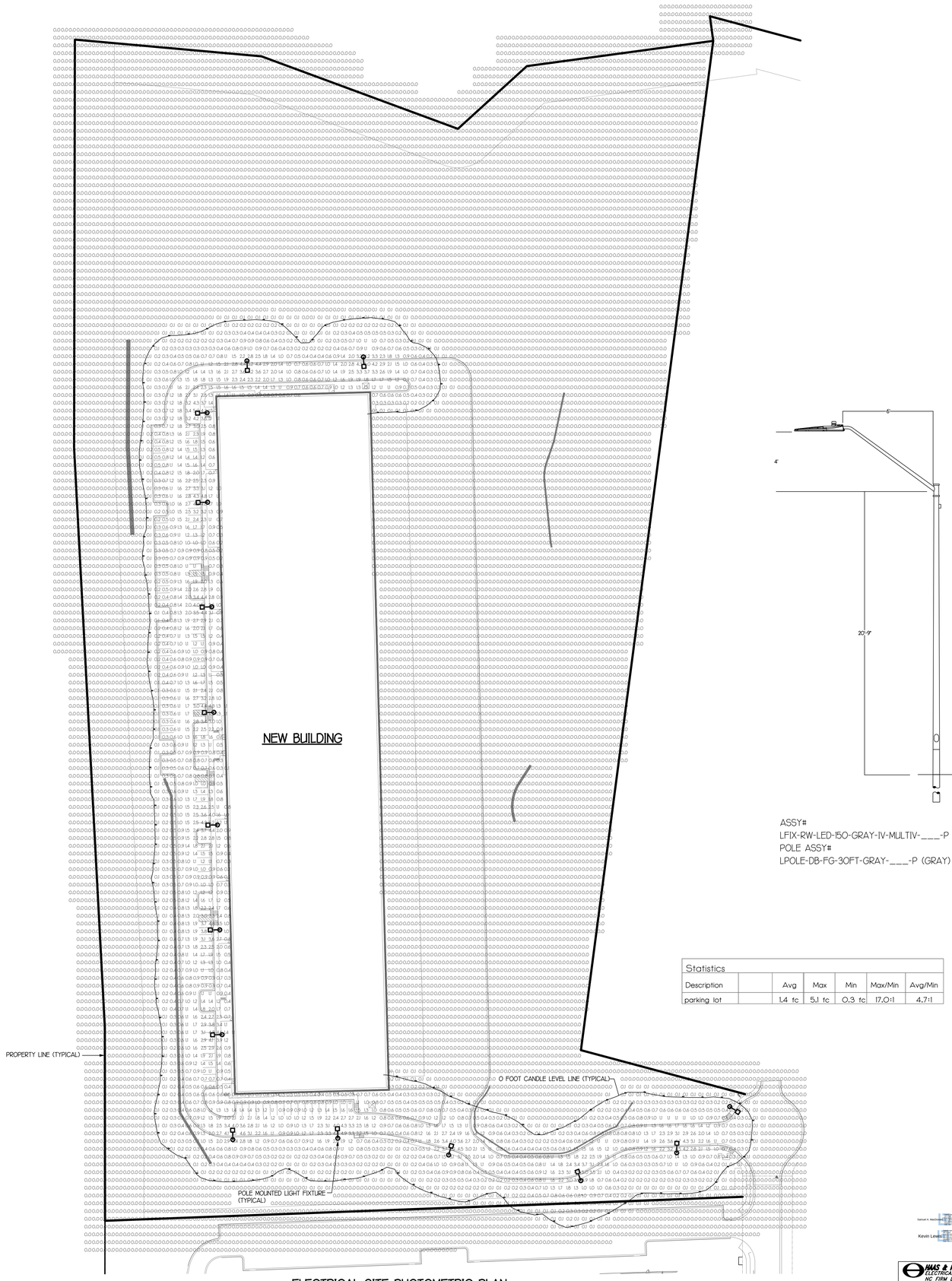
Poles available:

Name	*Mounting height*	*Color*
Fiberglass	25', 30', 35'	Gray
Fiberglass	25', 30', 35'	Black *(additional cost)*
Wood	25', 30', 35'	Standard
Metal *(special conditions)**	25', 30', 35'	Gray

Features	Benefits
Little or no installation cost	Frees up capital for other projects
Design services by lighting professionals included	Meets industry standards and lighting ordinances
Maintenance included	Eliminates high and unexpected repair bills
Electricity included	Less expensive than metered service
Warranty included	Worry-free
One low monthly cost on your electric bill	Convenience and savings for you
Turnkey operation	Provides hassle-free installation and service
Backed by over 40 years of experience	A name you can trust today ... and tomorrow

**2 raised foundation available when required.*

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ELECTRICAL SITE PHOTOMETRIC PLAN
SCALE: 1"=60'-0"

ASSY#
LFIX-RW-LED-150-GRAY-IV-MULTIV-____-P
POLE ASSY#
LPOLE-DB-FG-30FT-GRAY-____-P (GRAY)

Statistics						
Description		Avg	Max	Min	Max/Min	Avg/Min
parking lot		1.4 fc	5.1 fc	0.3 fc	17.0:1	4.7:1

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11/06/23

SPECULATIVE WAREHOUSE

KNIGHTDALE - 6

560 HINTON OAKS BLVD.
KNIGHTDALE, NC

DRAWING STATUS :
- ○ PRELIMINARY NOT FOR CONSTRUCTION
- ○ ISSUED FOR BIDDING
- ● ISSUED FOR CONSTRUCTION

OWNER / CLIENT SIGNATURE :

DATE :

C02	11/06/23	ADDED RETAINING WALLS
C01	08/10/23	ISSUED FOR CONSTRUCTION
ISSUE	DATE	DESCRIPTION

FILE NAME :

PROJECT NO.: C22167

SHEET TITLE :
ELECTRICAL SITE PHOTOMETRIC PLAN

SHEET :
ES1

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