

# Pender County Planning and Community Development

## Planning Division

805 S. Walker Street  
PO Box 1519  
Burgaw, NC 28425



Phone: 910-259-1202  
Fax: 910-259-1295  
[www.pendercountync.gov](http://www.pendercountync.gov)

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## Application Information Master Development Plan

**Case Number:** MDP 2024-67

**Application Type:** Master Development Plan

**Applicant:** MBD Holdings, LLC

**Owners:** MBD Holdings, LLC

**Location:** Approximately 100 feet west of the intersection of US Highway 17 and Dewberry Lane.

**Property ID #(s):** 3293-21-6527-0000

**Description:** 6,400 square foot shell building for commercial use to have up to three tenants.

**Current Zoning:** GB, General Business

**Technical Review Committee Meeting:** 08/01/2024

**Board of County Commissioners/Planning Board Meeting:** N/A

### Application Materials

Application Package  
Site Plan

# **APPLICATION PACKAGE**

# Pender County Planning and Community Development

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## **MASTER DEVELOPMENT PLAN**

Prior to submission of a preliminary master development plan for approval, the applicant shall request a pre-application review conference with the County staff.

1. The purpose of the pre-application conference shall be to discuss the proposal in relation to the requirements of the Land Use Plan and UDO and to obtain advice on the preparation of the master development plan.
2. At the pre-application conference, the applicant shall provide a land use plan describing the following:
  - a. The general location of the site.
  - b. The general location of proposed roads.
  - c. The general location of proposed uses, environmental areas, housing types or open space.
  - d. The uses on adjoining properties.
  - e. Utility requirements.

The purpose of the master development plan (MDP) is to promote orderly and planned development of property within Pender County. It is the purpose of the MDP to ensure that such development occurs in a manner that suits the characteristics of the land, is harmonious with adjoining property, is in substantial compliance with the goals and policies of the adopted Land Use Plan, and is in the best interest of the general public. The MDP shall be used to illustrate the characteristics of the property proposed for development and of surrounding properties.

*\*See Figures 2 and 3 at the end of Section 3.4, Pender County UDO for an illustrative process*

1. The MDP shall at least include all contiguous land under single or common ownership in the above zoning districts.
2. A preliminary MDP may be submitted with an application for a conditional rezoning but shall not be considered binding until approval of a final MDP.

### **Waivers to MDP – Residential Districts**

The Administrator may waive the requirements of a MDP in the Residential Districts if the proposed development contains all of the following criteria:

1. Contains ten (10) or less traditional detached single-family dwelling units;
2. Is not an integral portion of a property proposed or planned for future development or subdivision;
3. Is planned to be developed in a manner that is harmonious with surrounding properties and land uses; and
4. Does not substantially affect the purpose and intent of its zoning district and the intent of this article.

### **Waivers to MDP – Commercial and Industrial Districts**

The Administrator may waive the requirement of a MDP in the Commercial and Industrial Districts if the proposed development contains all of the following criteria:

1. If the proposed subdivision or development is less than five (5) acres in size;
2. Includes no new streets, roads or rights-of-way, does not further extend any existing or dedicated street, road or rights-of-way and does not significantly change the layout of any existing or dedicated street, road or rights-of-way;
3. Is not an integral portion of a property proposed or planned for future development or subdivision;
4. That such development is limited to one individual parcel and one single use in accordance with Section 5.2.

## APPLICATION FOR MASTER DEVELOPMENT PLAN

THIS SECTION FOR OFFICE USE			
Application No.	MDP	Date	
Application Fee	\$	Invoice Number:	
Pre-Application Conference		Hearing Date	
<b>SECTION 1: APPLICANT INFORMATION</b>			
Applicant's Name:	MBD Holdings, LLC	Owner's Name:	MBD Holdings, LLC
Applicant's Address:	P.O. Drawer 3007	Owner's Address:	P.O. Drawer 3007
City, State, & Zip	Wilmington, NC 28406	City, State, & Zip	Wilmington, NC 28406
Phone Number:	910-620-9446	Phone Number:	910-620-9446
Email Address:	michaelbdavis9@gmail.com	Email Address:	michaelbdavis9@gmail.com
Legal relationship of applicant to land owner: Same			
<b>SECTION 2: PROJECT INFORMATION</b>			
Type of Master Development Plan	<input type="checkbox"/> Residential <i>RP, PD, RM MH District</i>	<input checked="" type="checkbox"/> Commercial <i>GB, OI, IT, GI District</i>	
Property Identification Number (PIN):	3293-21-6527-0000	Total property acreage:	1.382
Zoning Classification:	GB (General Business)	Acreage to be disturbed:	1.10
Project Address :	U.S. Highway 17 (number not yet assigned)		
Description of Project Location:	North side of U.S. Highway 17 between 15749 and 15793.		
Describe activities to be undertaken on project site:	Leased space. Units for retails sales. Building can accommodate up to three tenants.		
<b>SECTION 3: SIGNATURES</b>			
Applicant's Signature		Date:	6/19/2024
Applicant's Printed Name	Michael B. Davis	Date:	
Owner's Signature		Date:	6/19/2024
Owner's Printed Name	Mchael B. Davis	Date:	

## NOTICE TO APPLICANT

1. Applicant or agent authorized in writing must attend the public hearing.
2. Once the public hearing has been advertised, the case will be heard unless the applicant withdraws the application or unless the Planning Board or other authorized person agrees to table or delay the hearing.
3. All fees are non-refundable
4. A complete application packet must be submitted prior to the deadline in order to be placed on the next Planning Board Agenda

### Office Use Only

<input type="checkbox"/>	<b>MDP Fees:</b> ( <i>\$500.00 plus \$10/acre for the first 100 acres \$5/acre thereafter</i> )	<b>Total Fee Calculation:</b> \$
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#### Attachments Included with Application: (Please include # of copies)

CD /other digital version	<input type="checkbox"/> Y <input type="checkbox"/> N	Plan Sets	# of large	# of 11X17	Other documents/Reports	<input type="checkbox"/> Y <input type="checkbox"/> N
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<b>Payment Method:</b>	<b>Cash :</b> <input type="checkbox"/> \$ _____	<b>Credit Card:</b> <input type="checkbox"/> Master Card <input type="checkbox"/> Visa	<b>Check:</b> <input type="checkbox"/> Check # _____
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Application received by:		Date:
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Application completeness approved by:		Date:
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Date scheduled for public hearing:
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# **SITE PLAN(S)**

# MBD HAMPSTEAD U.S. HIGHWAY 17 HAMPSTEAD, NORTH CAROLINA 28451

JUNE 10, 2024

## MASTER DEVELOPMENT PLAN

### OWNER

OWNER: MBD HOLDINGS, LLC  
ADDRESS: P.O. BOX 3007  
WILMINGTON, NC 28406  
TELEPHONE NO.: (910) 799-6635  
EMAIL: (910) 791-7388  
CONTACT: MICHAEL DAVIS

### ARCHITECT

COMPANY: WARREN WILSON ARCHITECT, P.C.  
ADDRESS: 2703 LYNDON AVENUE  
WILMINGTON, NC 28405  
TELEPHONE NO.: (910) 815-0019  
CONTACT: WARREN WILSON, AIA  
LICENSE NO.: 2683

### SOIL SCIENTIST

COMPANY: DAVEY RESOURCE GROUP, INC.  
ADDRESS: P.O. BOX 2522  
WILMINGTON, NC 28402  
TELEPHONE NO.: (910) 452-0001  
CONTACT: NICHOLAS P. HOWELL  
LICENSE NO.: 1294

### SITE SURVEY

COMPANY: BENJAMIN C. BROWN, PLS  
ADDRESS: 209 ELMHURST ROAD  
WILMINGTON, NC 28411  
TELEPHONE NO.: (910) 471-5454  
LICENSE NO.: L-2747



### HAGGETT ENGINEERING ASSOCIATES, INC.

5307 SOUTH COLLEGE ROAD, SUITE 2B  
WILMINGTON, NORTH CAROLINA 28412  
PHONE: (910) 397-0808  
LICENSE NO.: C-1111  
email: [haggettengineeri@bellsouth.net](mailto:haggettengineeri@bellsouth.net)

### SCHEDULE OF DRAWINGS

C.1.0	PROJECT NOTES
C.1.1	EXISTING SITE CONDITIONS
C.2.1	STORMWATER MANAGEMENT DRAINAGE AREA MAP
C.2.2	PROPOSED GRADING & STORMWATER MANAGEMENT PLAN
C.2.3	EROSION AND SEDIMENT CONTROL PLAN
C.2.4	SITE PLAN
C.2.5	LANDSCAPE PLAN
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C.3.2	STORMWATER MANAGEMENT SYSTEM DETAILS
C.3.3	STORMWATER MANAGEMENT SYSTEM DETAILS
C.3.4	STORMWATER MANAGEMENT SYSTEM DETAILS
C.3.5	STORMWATER MANAGEMENT SYSTEM DETAILS
C.3.6	STORMWATER MANAGEMENT SYSTEM DETAILS
C.3.7	STORMWATER MANAGEMENT SYSTEM DETAILS
C.4.1	EROSION & SEDIMENT CONTROL DETAILS
C.4.2	EROSION & SEDIMENT CONTROL DETAILS
C.4.3	EROSION & SEDIMENT CONTROL DETAILS
C.5.1	SITE DETAILS
C.5.2	SITE DETAILS
C.5.3	SITE DETAILS
C.5.4	SITE DETAILS
C.5.5	SITE DETAILS
C.6.1	DUPLEX PUMP STATION DETAILS
C.6.2	DUPLEX PUMP STATION DETAILS
C.6.3	DUPLEX PUMP STATION DETAILS

### AGENCY DETAILS

D.1	PENDER COUNTY WATER DETAILS
D.2	PAVEMENT SIGN & MARKING DETAILS
D.3	PAVEMENT SIGN & MARKING DETAILS

### DUKE ENERGY PROGRESS

24-0237A	SITE LIGHTING ARRANGEMENT
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**SITE PLAN NOTES:**

1. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
2. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET PENDER COUNTY AND/OR NCDOT STANDARDS.
3. TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.

**UTILITY NOTES:**

1. WHEN PVC WATER MAINS AND/OR POLYETHYLENE SERVICES ARE PROPOSED THE PIPES ARE TO BE MARKED WITH NO. 10 INSULATED COPPER WIRE INSTALLED THE ENTIRE LENGTH AND STRAPPED TO THE PIPES WITH DUCT TAPE. THE INSULATED WIRE IS TO BE STRIPPED TO BARE WIRE AND SECURED TO ALL VALVES AND FITTINGS. THIS WIRE IS TO BE ACCESSIBLE AT ALL FIRE HYDRANTS AND WATER METER BOXES TO AID IN FUTURE LOCATION OF FACILITIES.

CONTRACTORS SHALL BE RESPONSIBLE FOR DAMAGE TO UTILITY LINES LOCATED WITHIN THE PROJECT BOUNDARIES, WHETHER SHOWN ON THE PLANS OR NOT, DURING THE WORK ON THE PROJECT. BEFORE ANY EXCAVATION ACTIVITIES, THE CONTACTOR SHALL DO THE FOLLOWING:

- \* CALL THE NC ONE CALL CENTER AT 1-800-632-4949 AND REQUEST THE LOCATION OF UTILITIES WITHIN THE PROJECT AREA.

**LANDSCAPING:**

LAYOUT PROVIDED BY THE LUCKY LADY BUGS

**SITE LIGHTING:**

DESIGN PROVIDED BY AMERICAN SPORTS LIGHTING, INC.

**STREET LIGHTING:**

DESIGN TO BE PROVIDED BY DUKE ENERGY.

**SURVEYORS NOTES:**

- 1.) THIS IS A SURVEY OF AN EXISTING PARCEL(S) OF LAND.  
SURVEY INCLUDES A BOUNDARY & TOPOGRAPHIC SURVEY.
- 2.) BEARINGS FOR THIS SURVEY ARE BASED ON MB NAD 1983  
VERTICAL DATUM IS BASED ON NAD 1983.
- 3.) ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES.
- 4.) AREA BY COORDINATE GEOMETRY.
- 5.) NO GRID MONUMENTS FOUND WITHIN 2000' OF SITE.
- 6.) THIS SURVEY PERFORMED AND MAP PREPARED WITHOUT BENEFIT OF A TITLE REPORT. THIS SURVEY SUBJECT TO ANY FACTS AND EASEMENTS WHICH MAY BE DISCLOSED BY A FULL AND ACCURATE TITLE SEARCH.
- 7.) FLOOD NOTE: AS DETERMINED BY GRAPHIC PLOTTING, THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE PER FEMA FLOOD INSURANCE RATE MAP #S  
  
3720329300J, EFFECTIVE 2/16/2007
- 8.) UTILITY STATEMENT: THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
- 9.) PENDER COUNTY PARCEL #'S: 3293-21-6527-0000
- 10.) TOTAL TRACT AREA: 1.382± ACRES
- 11.) ZONING: GB
- 12.) REFERENCES:  
  
DB 04721 / PG 0140

**EROSION & SEDIMENT CONTROL PERMIT:**

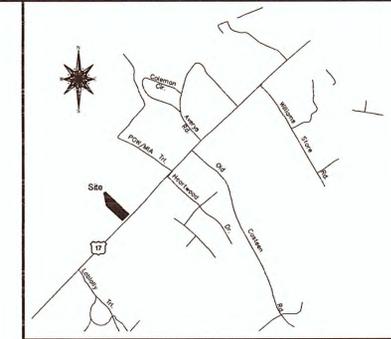
PENDE-2023-034 DATED JULY 12, 2023

**STORMWATER MANAGEMENT PERMIT:**

SW8 230610 DATED APRIL 3, 2024

**SITE DATA TABLE:**

Parcel Identification Number:		3293-21-6527-0000	
Zoning District:		GB	
Leasable Space (floor area):		5,955 s.f.	
CAMA Land Use Classification:		not applicable	
<b>Building Setbacks:</b>			
Front Required:	25 feet	Front Provided:	144 feet
Rear Required:	10 feet	Rear Provided:	273 feet
Side Required:	10 feet	Side Provided:	15 feet
Min. Corner Required:	n/a	Min. Corner Provided:	n/a
Total Land Area of Site =		60,216 s.f. (1.382 acres)	
<b>Impervious Surface after Development:</b>			
Buildings (sf):	6,300	Walkways (sf):	540
Roads (sf):	0	Total (sf):	30,865
Area of Land Disturbing Activity =		48,000 s.f. (1.10 acres)	
<b>Vehicle Parking Summary:</b>			
Basis for Determination:		Retail: 1 space per 225 s.f. of floor area	
Parking Required:	27	Parking Provided:	29
ADA Parking Required:	2	ADA Parking Provided:	2
Onsite Parking:	29	Offsite Parking:	0



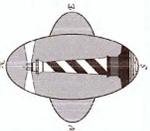
**VICINITY MAP**  
(NOT TO SCALE)

**MBD HAMPSTEAD**  
**U.S. HIGHWAY 17**  
**HAMPSTEAD, NORTH CAROLINA 28443**

**PROJECT NOTES**

NO.	REVISION	DATE

**HAGGETT ENGINEERING ASSOCIATES, INC.**  
6368 MYRTLE GROVE ROAD  
WILMINGTON, NORTH CAROLINA 28409  
PHONE: (910) 397-0808  
LICENSE NO.: C-1111



DRAWING:  
**C.1.0**

**PROJECT NOTES**

JAMES M. COPP  
PIN: 3293-12-7158-0000  
DB: 902 PG: 281  
ZONE: RP

TF PROPERTIES, LLC  
PIN: 3293-21-7609-0000  
DB: 4397 PG: 270  
ZONE: GB

MBD HOLDINGS, LLC  
PIN: 3293-21-6527-0000  
DB: 4721 PG: 140  
ZONE: GB  
AREA: 1.382 ACRES

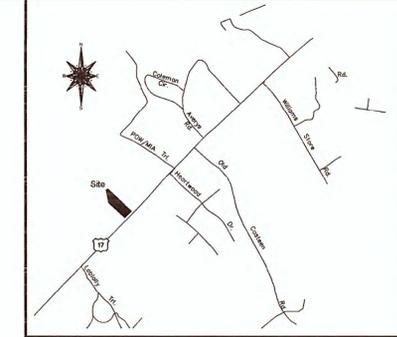
LEX HAYES SKIPPER  
PIN: 3293-21-2499-0000  
DB: 1160 PG: 276  
ZONE: GB

DANIEL VENTURA  
PIN: 3293-21-5474-0000  
DB: 4697 PG: 163  
ZONE: GB

SOIL BORING DATA					
Boring Number	SHWT (inches)	Surface Elevation (feet, MSL)	SHWT Elevation (feet, MSL)	Test Depth (inches)	Ksat (in/hr)
B1	43	51.32	47.74	35	1.40
B2	43	51.25	47.67	36	1.24
B3	53	51.86	47.44	46	2.36
B4	42	49.94	46.88	20	2.36
B5	52	49.32	44.99	*	*
Geomean					1.76

\* B5 was unable to be tested due to the depth of fill material found.

**EXISTING SITE CONDITIONS**



VICINITY MAP  
(NOT TO SCALE)

- LEGEND**
- PROPERTY LINE
  - PP POWER POLE
  - LP LIGHT POLE
  - GW GUY WIRE
  - CHE OVERHEAD ELECTRIC
  - UGE UNDERGROUND ELECTRIC
  - FO UNDERGROUND FIBER OPTIC
  - GAS UNDERGROUND NATURAL GAS
  - ECM EXISTING CONCRETE MONUMENT
  - ROW R.O.W. MARKER
  - DI EXISTING DROP INLET
  - CB EXISTING CATCH BASIN
  - 12" PVC STORM DRAIN LINE
  - FH FIRE HYDRANT
  - WM WATER METER
  - W WATER LINE
  - MH EXISTING MANHOLE
  - CO CLEAN OUT
  - SS SANITARY SEWER LINE
  - FM PLURIS SEWER FORCE MAIN
  - RUNOFF FLOW DIRECTION
  - B1 SOIL BORING/TEST LOCATION

**REFERENCES:**

SUB-SURFACE SOIL INFORMATION PROVIDED BY DAVEY RESOURCE GROUP, INC.

2021 PENDER COUNTY AERIAL PHOTOGRAPHY IN DIGITAL GEO-REFERENCED FORMAT.

**UTILITY LOCATION:**

CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY UTILITY LOCATED WITHIN THE PROJECT BOUNDARIES, WHETHER SHOWN ON THE PLANS OR NOT, DURING THE WORK ON THE PROJECT.

CONTRACTORS SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES LOCATED WITHIN THE PROJECT BOUNDARIES IN ACCORDANCE WITH THE PROVISIONS OF ARTICLE 8A NCGS 87-115 THROUGH 87-130; UNDERGROUND UTILITY SAFETY AND DAMAGE PREVENTION ACT.

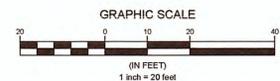
BEFORE ANY EXCAVATION, CONTRACTORS SHALL DO THE FOLLOWING:

\* CALL NORTH CAROLINA 811 AT 811 IN STATE OR 1-800-632-4949 FROM ANY LOCATION TO REQUEST THE LOCATION OF PUBLIC UTILITY LINES WITHIN THE PROJECT AREA.

\* CONTRACT A PRIVATE LINE LOCATOR TO LOCATE AND MARK UTILITY LINES WHICH ARE NOT OWNED BY A PUBLIC UTILITY. A LISTING OF LOCATORS MAY BE FOUND AT: [www.nc811.org/line-locators.html](http://www.nc811.org/line-locators.html)



Benjamin C. Brown  
Professional Land Surveyor  
NC PLS No. L-2747  
209 Elmhurst Road  
Wilmington, North Carolina 28411  
Phone: (910) 471-5454  
benjyb@bellsouth.net



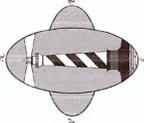
© 2024 HAGGETT ENGINEERING ASSOCIATES, INC.

MBD HAMPSTEAD  
U.S. HIGHWAY 17  
HAMPSTEAD, NORTH CAROLINA 28443

EXISTING SITE CONDITIONS

NO.	REVISION	DATE

HAGGETT ENGINEERING ASSOCIATES, INC.  
6368 MYRTLE GROVE ROAD  
WILMINGTON, NORTH CAROLINA 28409  
PHONE: (910) 397-0808  
LICENSE NO.: C-1111



DRAWING:  
**C.1.1**

JAMES M. COPP  
 PIN: 3293-12-7158-0000  
 DB: 902 PG: 281  
 ZONE: RP

LEX HAYES SKIPPER  
 PIN: 3293-21-2499-0000  
 DB: 1160 PG: 276  
 ZONE: GB

DANIEL VENTURA  
 PIN: 3293-21-5474-0000  
 DB: 4697 PG: 163  
 ZONE: GB

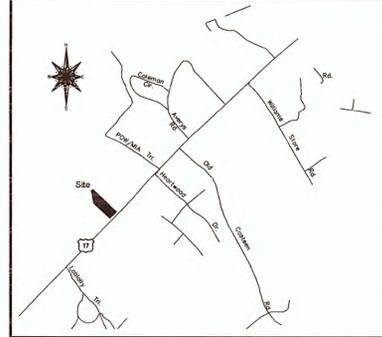
TF PROPERTIES, LLC  
 PIN: 3293-21-7609-0000  
 DB: 4387 PG: 270  
 ZONE: GB

BUILDINGS = 6,300 S.F.  
 ON-SITE PARKING = 14,915 S.F.  
 ON-SITE SIDEWALKS = 940 S.F.

ON-SITE PARKING = 6,909 S.F.

ON-SITE PARKING = 5,201 S.F.

**STORMWATER MANAGEMENT DRAINAGE AREA MAP**



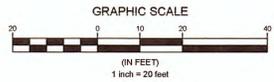
VICINITY MAP  
(NOT TO SCALE)

**LEGEND**

---	PROPERTY LINE
● PP	POWER POLE
● LP	LIGHT POLE
— GW	GUY WIRE
— OHE	OVERHEAD ELECTRIC
— UGE	UNDERGROUND ELECTRIC
— FO	UNDERGROUND FIBER OPTIC
— GAS	UNDERGROUND NATURAL GAS
ECM	EXISTING CONCRETE MONUMENT
RCW	R.O.W. MARKER
DI	EXISTING DROP INLET
CB	EXISTING CATCH BASIN
---	12" PVC STORM DRAIN LINE
FH	FIRE HYDRANT
WM	WATER METER
W	WATER LINE
MH	EXISTING MANHOLE
CO	CLEAN OUT
SS	SANITARY SEWER LINE
FM	PLURIS SEWER FORCE MAIN
→	RUNOFF FLOW DIRECTION
● B1	SOIL BORING/TEST LOCATION

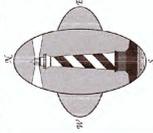
**REFERENCES:**

SUB-SURFACE SOIL INFORMATION PROVIDED BY DAVEY RESOURCE GROUP, INC.  
 2021 PENDER COUNTY AERIAL PHOTOGRAPHY IN DIGITAL GEO-REFERENCED FORMAT.



NO.	REVISION	DATE

**HAGGETT ENGINEERING ASSOCIATES, INC.**  
 6388 MYRTLE GROVE ROAD  
 WILMINGTON, NORTH CAROLINA 28409  
 PHONE: (910) 397-0808  
 LICENSE NO.: C-1111



**DRAWING: C.2.1**

PROJECT NO.: 22-1004  
 DESIGN: DOUG HAGGETT  
 CHECKED BY: [Signature]  
 DATE: 10JUN2024  
 SCALE: AS SHOWN













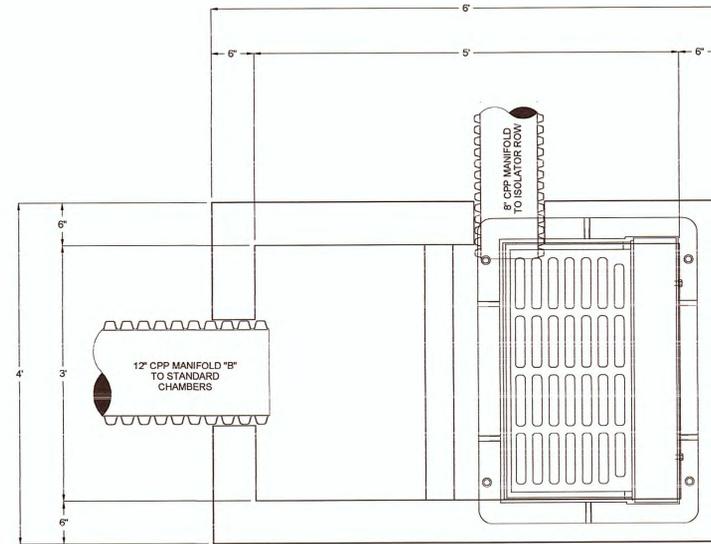


Concrete Pipe & Precast, Inc.

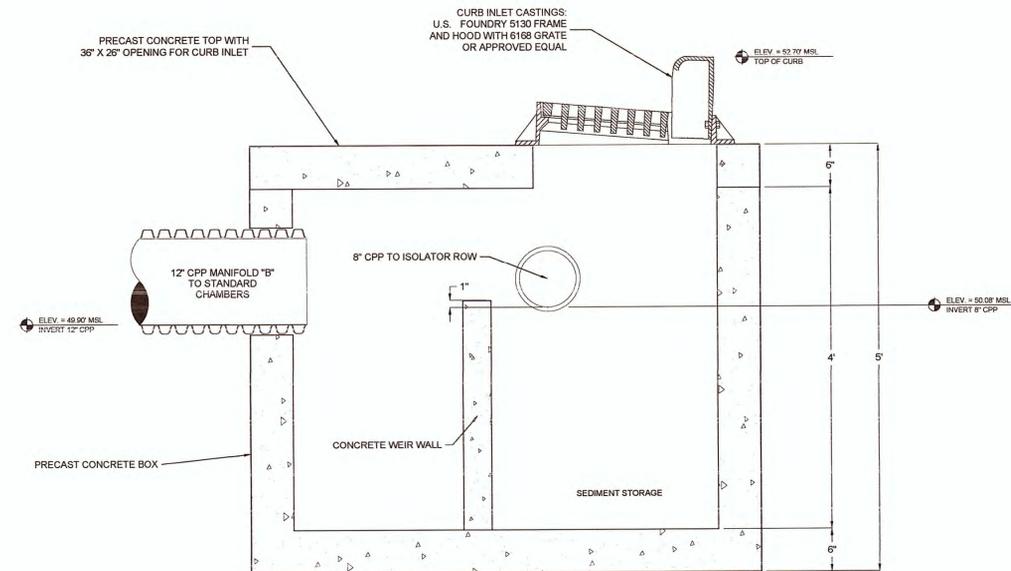
452 Webb Road  
Dunn, NC 28335  
Phone: (910) 862-6411  
Contact: Aimee Seabolt  
Email: aseabolt@concretepandp.com



4640 TRUEMAN BLVD  
HILLIARD, OH 43026  
1-800-733-7473



PLAN VIEW



ELEVATION

**INLET STRUCTURE "G" - INFILTRATION/STORAGE SYSTEM**

**GENERAL INSTALLATION NOTES:**

PROVIDE A MINIMUM OF 8-INCHES OF NO. 57 STONE BENEATH EACH STRUCTURE.

CONTRACTOR SHALL LEVEL STONE BEDDING PRIOR TO SETTING STRUCTURES.

PLACE BACKFILL AROUND STRUCTURES IN LIFTS NOT EXCEEDING 12-INCHES. ADD WATER TO SOIL IF NECESSARY TO IMPROVE SOIL MOISTURE CONTENT FOR COMPACTION.

**CONCRETE NOTES:**

CONCRETE MINIMUM STRENGTH: 4000 PSI @ 28 DAYS

REINFORCEMENT: ASTM C-478

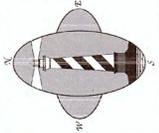
**STORMWATER MANAGEMENT SYSTEM DETAILS**

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**MBD HAMPSTEAD  
U.S. HIGHWAY 17  
HAMPSTEAD, NORTH CAROLINA 28443  
STORMWATER MANAGEMENT SYSTEM DETAILS**

NO.	REVISION	DATE

**HAGGETT ENGINEERING ASSOCIATES, INC.**  
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WILMINGTON, NORTH CAROLINA 28409  
PHONE: (910) 397-0808  
LICENSE NO.: C-1111



DRAWING: **C.3.3**

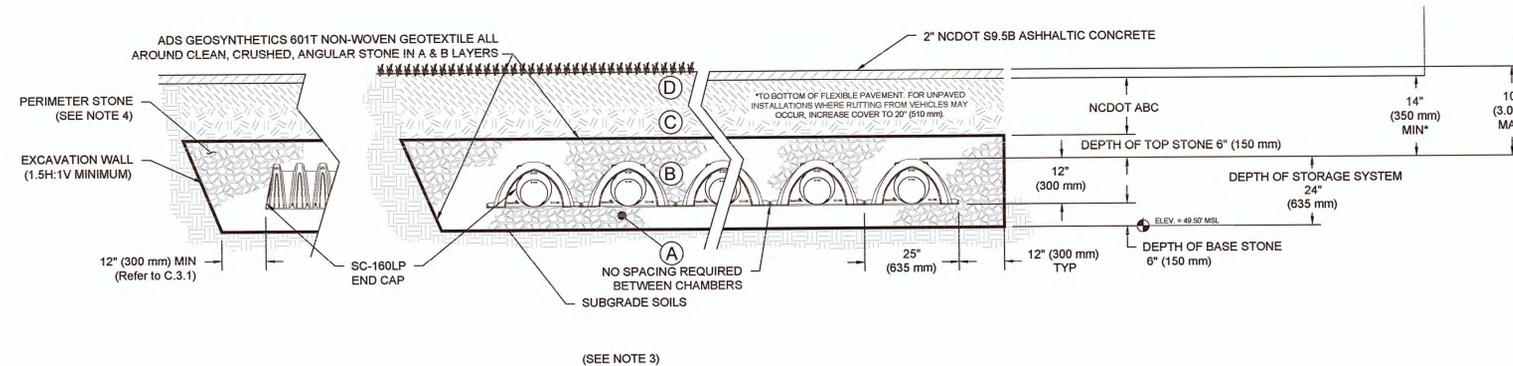


**ACCEPTABLE FILL MATERIALS: STORMTECH SC-160LP CHAMBER SYSTEMS**

MATERIAL LOCATION	DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	FINAL FILL: FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	INITIAL FILL: FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 14" (355 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	AASHTO M145* A-1, A-2-4, A-3  OR AASHTO M43* 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	EMBEDMENT STONE: FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	NO COMPACTION REQUIRED.
A	FOUNDATION STONE: FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.2,3

PLEASE NOTE:

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

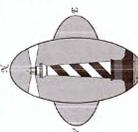


NOTES:

- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
- PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 1.5"
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT<sup>2</sup>. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

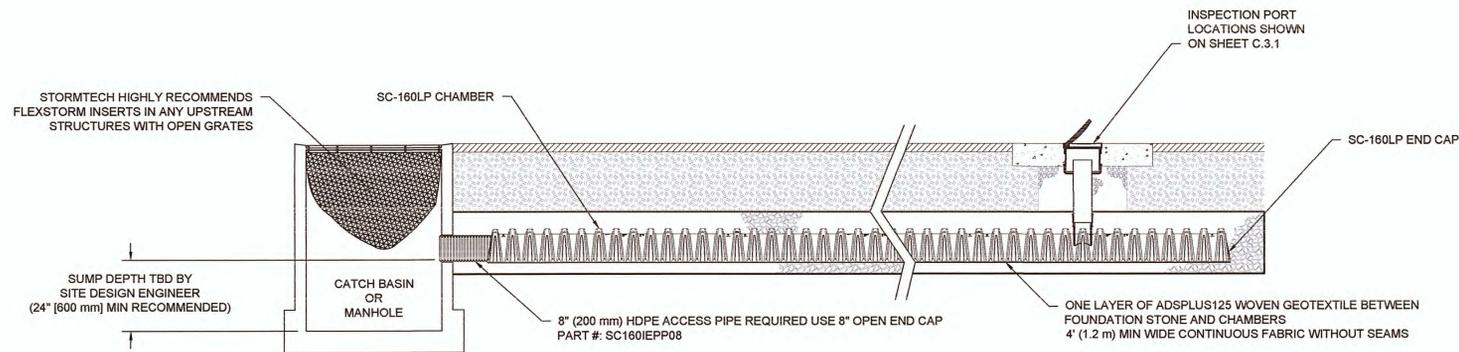
**STORMWATER MANAGEMENT SYSTEM DETAILS**

HAGGETT ENGINEERING ASSOCIATES, INC.  
6368 MYRTLE GROVE ROAD  
WILMINGTON, NORTH CAROLINA 28409  
PHONE: (910) 397-0808  
LICENSE NO.: C-1111

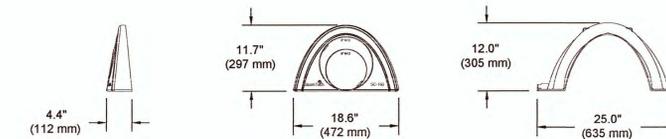
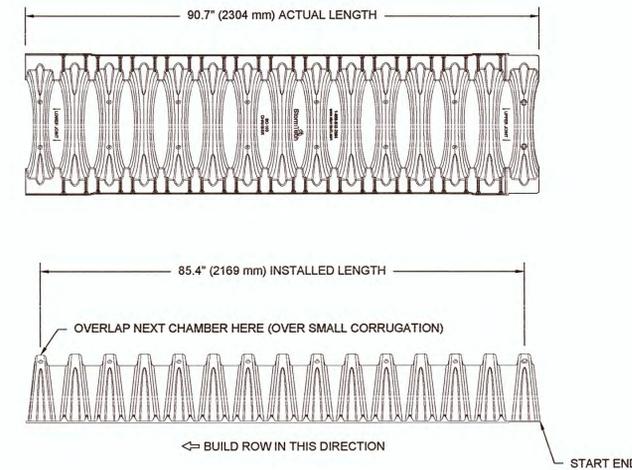


DRAWING: **C.3.5**

PROJECT NO.: 22-1004  
CHECKED BY: DOUG HAGGETT  
DATE: 10JUN2024  
SCALE: AS SHOWN



**SC-160LP ISOLATOR ROW PLUS DETAIL**  
NTS

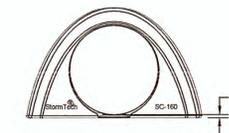


**NOMINAL CHAMBER SPECIFICATIONS**

SIZE (W X H X INSTALLED LENGTH)	25.0" X 12.0" X 85.4" (635 mm X 305 mm X 2169 mm)	
CHAMBER STORAGE	6.85 CUBIC FEET	(0.19 m³)
MINIMUM INSTALLED STORAGE*	16.0 CUBIC FEET	(0.45 m³)
WEIGHT	24.0 lbs.	(10.9 kg)

\*ASSUMES 6" (152 mm) ABOVE, 6" (152 mm) BELOW, AND STONE BETWEEN CHAMBERS WITH 40% STONE POROSITY.

PART #	STUB	A
SC160EPP	6" (150 mm)	0.66" (16 mm)
	8" (200 mm)	0.80" (20 mm)
SC160EPP08	8" (200 mm)	0.98" (24 mm)



ALL STUBS ARE PLACED AT BOTTOM OF END CAP SUCH THAT THE OUTSIDE DIAMETER OF THE STUB IS FLUSH WITH THE BOTTOM OF THE END CAP. FOR ADDITIONAL INFORMATION CONTACT STORMTECH AT 1-888-892-2694.

NOTE: ALL DIMENSIONS ARE NOMINAL

**SC-160LP TECHNICAL SPECIFICATION**  
NTS

**INSPECTION & MAINTENANCE**

**STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT**

**A. INSPECTION PORTS (FOUR LOCATIONS)**

- A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
- A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
- A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
- A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
- A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

**B. ALL ISOLATOR PLUS ROWS**

- B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
  - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
- B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

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

- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

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

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

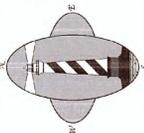
**NOTES**

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

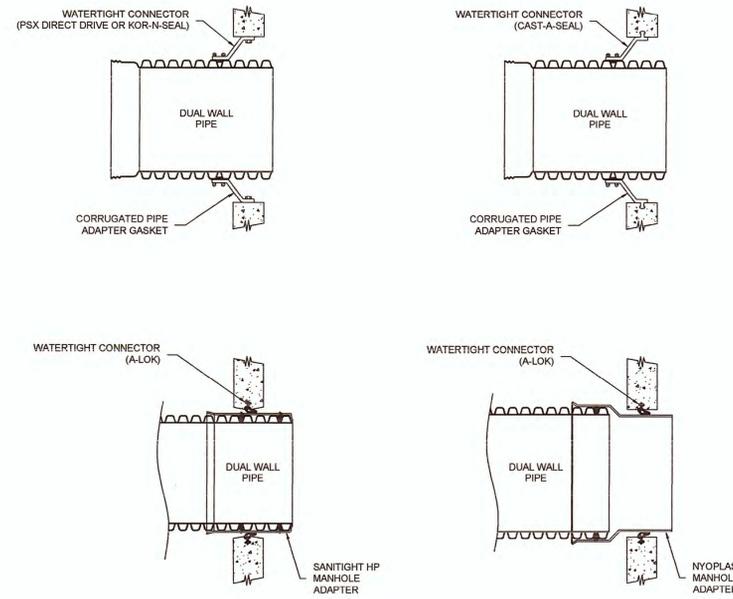
MBD HAMPSTEAD  
U.S. HIGHWAY 17  
HAMPSTEAD, NORTH CAROLINA 28443  
STORMWATER MANAGEMENT SYSTEM DETAILS

NO.	REVISION	DATE

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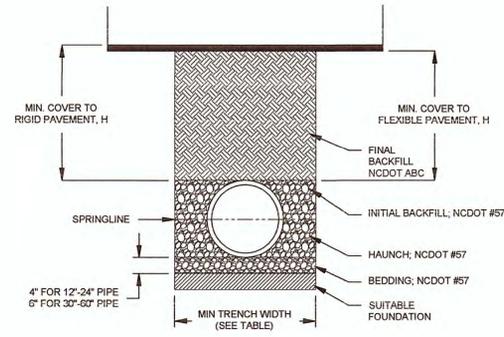


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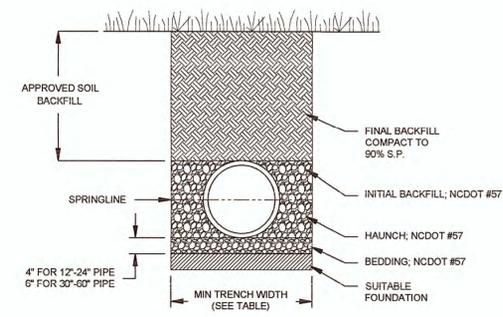


**12" - 24" HDPE & HP-STORM STRUCTURE CONNECTION**  
NTS

NOTES:  
PERFORMANCE IS HIGHLY DEPENDENT ON INSTALLATION. CONTRACTOR MUST ENSURE MANHOLE GASKET IS UNIFORMLY SEATED AROUND THE STRUCTURE ADAPTER. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND MANHOLE.  
REFER TO ADS STANDARD DETAIL STD-201 AND TECHNICAL NOTE 5.04 HDPE PIPE CONNECTIONS TO MANHOLES AND STRUCTURES FOR INSTALLATION RECOMMENDATIONS.  
GROUTED CONNECTIONS ARE NOT APPROVED FOR THIS PROJECT.



**HP-STORM PIPE INSTALLATION - PAVED AREAS**  
NTS



**HP-STORM PIPE INSTALLATION - UNPAVED AREAS**  
NTS

TABLE 1, RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
12" (300mm)	30" (762mm)
15" (375mm)	34" (864mm)
18" (450mm)	38" (965mm)
24" (600mm)	48" (1219mm)
30" (750mm)	58" (1473mm)
36" (900mm)	64" (1626mm)
42" (1050mm)	72" (1829mm)
48" (1200mm)	80" (2032mm)
60" (1500mm)	96" (2438mm)

TABLE 2, MINIMUM RECOMMENDED COVER BASED ON

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-25	HEAVY CONSTRUCTION (75T AXLE LOAD) *
12" - 48" (300mm - 1200mm)	12" (305mm)	48" (1219mm)
60" (1500mm)	24" (610mm)	60" (1524mm)

\* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER  
TABLE 3, MAXIMUM COVER FOR ADS SANITITE HP PIPE, ft (m)

**SC-160LP STORMTECH CHAMBER SPECIFICATIONS**

- CHAMBERS SHALL BE STORMTECH SC-160LP.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
- THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
- REQUIREMENTS FOR HANDLING AND INSTALLATION:
  - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
  - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 1.5".
  - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 400 LBS/FT<sup>3</sup>; THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
  - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
  - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
  - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
- CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

**IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-160LP SYSTEM**

- STORMTECH SC-160LP CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- STORMTECH SC-160LP CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-160LP CONSTRUCTION GUIDE".
- FOUNDATION STONE AND EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE; AASHTO M43 #3,357, 4, 487, 5, 56, OR 57.
- THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- THE DEPTH OF FOUNDATION STONE SHALL BE DETERMINED BASED ON THE SUBGRADE BEARING CAPACITY PROVIDED BY THE SITE DESIGN ENGINEER.
- THE CONTRACTOR MUST REPORT ANY DISCREPANCIES CONCERNING CHAMBER FOUNDATION DESIGN AND SUBGRADE BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
- JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
- CHAMBERS SHALL BE INSTALLED "TOE TO TOE". NO ADDITIONAL SPACING BETWEEN ROWS IS REQUIRED.
- STORMTECH RECOMMENDS 3 BACKFILL METHODS:
  - STONESHOOTER LOCATED OFF THE CHAMBER BED.
  - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
  - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

**NOTES FOR CONSTRUCTION EQUIPMENT**

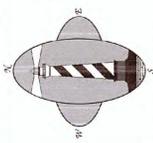
- THE USE OF CONSTRUCTION EQUIPMENT OVER SC-160LP CHAMBERS IS LIMITED:
  - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
  - NO RUBBER TIRE LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-160LP CONSTRUCTION GUIDE".
  - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-160LP CONSTRUCTION GUIDE".
- FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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STORMWATER MANAGEMENT SYSTEM DETAILS

NO.	REVISION	DATE

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PHONE: (910) 397-0808  
LICENSE NO.: C-1111



DRAWING: **C.3.7**

**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.

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

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

**GROUND STABILIZATION SPECIFICATION**

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

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

**TEMPORARY SEEDING SPECIFICATION**

All disturbed areas shall be dressed to grade and plowed to a depth of 5-inches. The top 2-inches shall be pulverized to provide a uniform seedbed. Lime and fertilizer should be applied with the equipment necessary to provide uniform distribution. The hand-bucket method is not acceptable. Lime and fertilizer should be incorporated into the soil prior to seeding.

The following rates per acres are to be applied:

MATERIAL	RATE
10-10-10 Fertilizer	750 LBS
Agricultural Limestone	2000 LBS
Rye Grain	120 LBS
Annual Lespedeza	50 LBS

**PERMANENT SEEDING SPECIFICATION**

All disturbed areas shall be dressed to grade and plowed to a depth of 5-inches. The top 2-inches shall be pulverized to provide a uniform seedbed. Lime and fertilizer should be applied with the equipment necessary to provide uniform distribution. The hand-bucket method is not acceptable. Lime and fertilizer should be incorporated into the soil prior to seeding.

The following rates per acres are to be applied:

MATERIAL	RATE
10-20-20 Fertilizer	500 LBS
Agricultural Limestone	4000 LBS
Abruzzi Rye	50 LBS
Pensacola Bahaiagrass	50 LBS
Kentucky 31 Fescue	50 LBS
Korean Lespedeza	15 LBS
Centipedegrass	5 LBS
Common Bermudagrass	25 LBS

Seeded area shall be cultipacked to firm seed bed and to cover seed. A minimum compaction of 85% Standard Proctor shall be provided in swales to prevent settlement. Contractor shall repair areas which exhibit settlement within the first 60 days of acceptance.

Grain straw shall be applied over the seeded areas as much. No bare ground shall be visible in the mulched area. Straw shall be applied uniformly at a minimum rate of 4000 LBS per acre.

The mulched area shall be tacked with liquid asphalt or equal sufficient to hold the straw in place on slopes of 15% or more.

Ditch treatment shall be installed in areas where erosion in ditches or swales could result from steep grades. Install jute mesh, excelsior matting, or fiberglass rowing. Install ditch treatment prior to mulching.

All erosion and sediment control measures shall be checked for stability and operation following each storm event, but not less than once per week. Repairs or cleaning necessary to maintain erosion and sediment control practices shall be completed within 24-hours.

Contractor shall re-fertilize and re-seed seeded areas as necessary.

Contractor shall replace mulch as needed to protect seed beds.

**POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**

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

**EQUIPMENT AND VEHICLE MAINTENANCE**

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

**LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE**

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

**PAINT AND OTHER LIQUID WASTE**

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

**PORTABLE TOILETS**

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

**EARTHEN STOCKPILE MANAGEMENT**

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

**HERBICIDES, PESTICIDES AND RODENTICIDES**

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

**HAZARDOUS AND TOXIC WASTE**

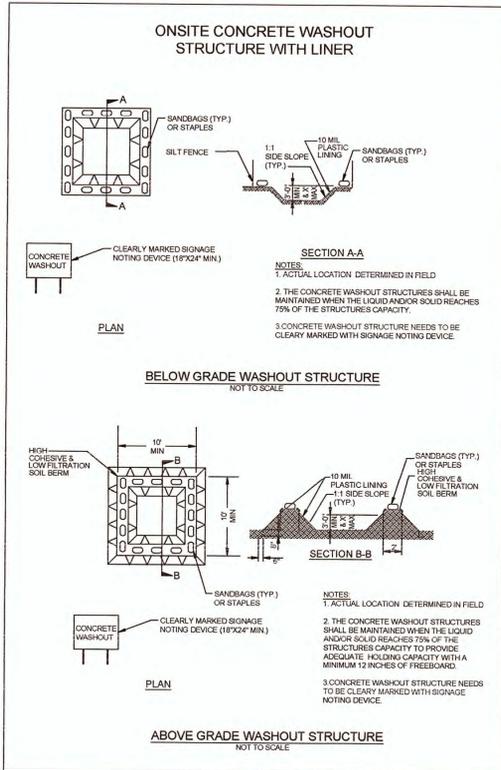
- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

**SILT FENCE**

- Fence fabric shall be provided when directed by the engineer and shall be a minimum of 32-inches wide and have 6 line wires with stay wires 12-inches on center.
- Filter fabric shall be a minimum of 36-inches wide and shall be fastened to the fence wire every 2-feet of length or as directed by the engineer.
- Steel post shall be a minimum of 5-feet in height and shall be of the self-fastener angle steel type. Unpainted posts are not acceptable.
- Wood posts are not acceptable.
- Provide stone to secure the filter fabric skirt if necessary.
- Contractor shall remove silt fence after completion of the site work.

**CONCRETE WASHOUTS**

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

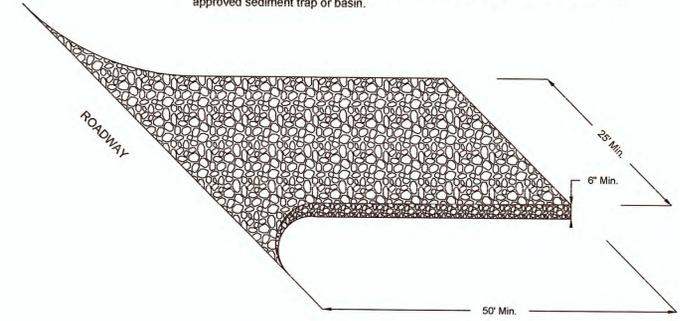


**CONSTRUCTION ENTRANCES**

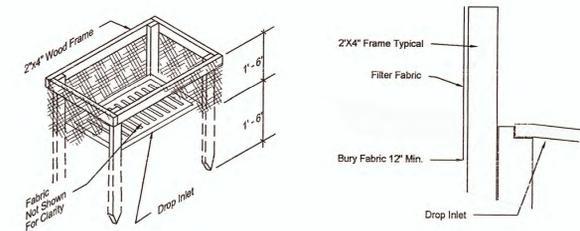
Construction entrance(s) / exit(s) shall be maintained throughout the construction or until paving necessitates removal. All materials spilled, dropped, washed or tracked from vehicles onto the roadway shall be removed immediately.

Stabilized stone pad:  
Thickness = 6" Minimum  
Width = 25' Minimum (20' for entrance to Lot 11)  
Length = 50' Minimum  
Stone Size = No. 4 Minimum  
Filter Fabric = Not Required

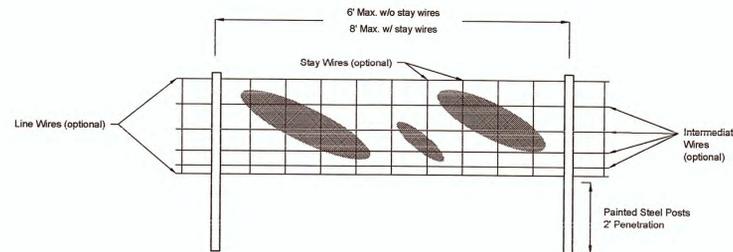
- Provide periodic top dressing with 2-inches of stone as required.
- Wheels must be cleaned to remove mud prior to entrance onto the roadway.
- When washing is required, it shall be done on the stone pad which shall drain to an approved sediment trap or basin.



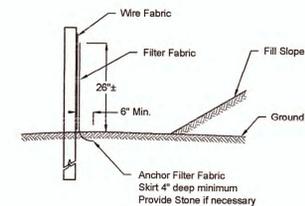
CONSTRUCTION ENTRANCE DETAIL  
NOT TO SCALE



TEMPORARY SILT FENCE @ INLETS  
NOT TO SCALE



SILT FENCE  
NOT TO SCALE



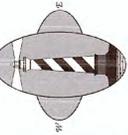
**EROSION & SEDIMENT CONTROL DETAILS**

**MBD HAMPSTEAD**  
**U.S. HIGHWAY 17**  
**HAMPSTEAD, NORTH CAROLINA 28443**  
**EROSION & SEDIMENT CONTROL DETAILS**

SCALE: AS SHOWN  
DATE: 10/JUN/2024  
CHECKED BY: DOUG HAGGETT  
DESIGN: DOUG HAGGETT  
PROJECT NO.: 22-1004

NO.	REVISION	DATE

**HAGGETT ENGINEERING ASSOCIATES, INC.**  
6368 MYRTLE GROVE ROAD  
WILMINGTON, NORTH CAROLINA 28409  
PHONE: (910) 397-0808  
LICENSE NO.: C-1111



DRAWING:  
**C.4.1**

SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

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

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 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 stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

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

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]

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

- (a) Visible sediment deposition in a stream or wetland.
- (b) Oil spills if:
  - They are 25 gallons or more.
  - They are less than 25 gallons but cannot be cleaned up within 24 hours.
  - They cause sheen on surface waters (regardless of volume), or
  - They are within 100 feet of surface waters (regardless of volume).
- (c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref. 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref. 40 CFR 302.4) or G.S. 143-215.85.
- (d) Anticipated bypasses and unanticipated bypasses.
- (e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

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

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> <li>• <b>Within 24 hours</b>, an oral or electronic notification.</li> <li>• <b>Within 7 calendar days</b>, 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.</li> <li>• 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.</li> </ul>
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	<ul style="list-style-type: none"> <li>• <b>Within 24 hours</b>, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.</li> </ul>
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> <li>• <b>A report at least ten days before the date of the bypass, if possible.</b> The report shall include an evaluation of the anticipated quality and effect of the bypass.</li> </ul>
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> <li>• <b>Within 24 hours</b>, an oral or electronic notification.</li> <li>• <b>Within 7 calendar days</b>, a report that includes an evaluation of the quality and effect of the bypass.</li> </ul>
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	<ul style="list-style-type: none"> <li>• <b>Within 24 hours</b>, an oral or electronic notification.</li> <li>• <b>Within 7 calendar days</b>, 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 recurrence of the noncompliance. [40 CFR 122.41(l)(6).</li> <li>• Division staff may waive the requirement for a written report on a case-by-case basis.</li> </ul>

MAINTENANCE PLAN

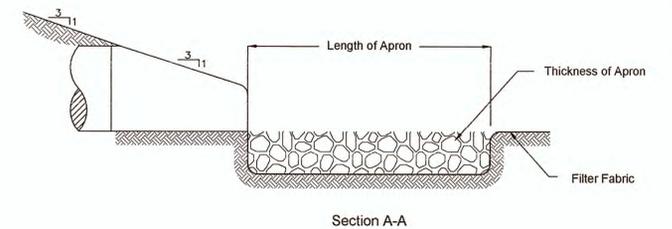
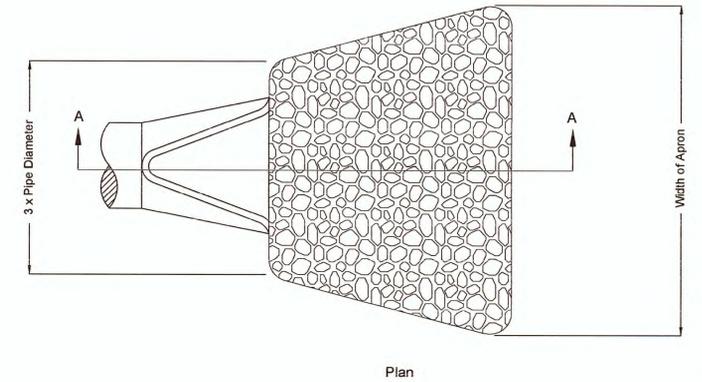
1. All erosion and sediment control practices will be checked for stability and operation following every run-off producing rainfall, but in no case, less than once every week. Any needed repairs will be made immediately to maintain all practices as designed.
2. All construction entrances will be periodically top-dressed with an additional 2-inches of #4 stone to maintain proper depth. Any sediment that is tracked onto the street will be immediately removed.
3. Sediment will be removed from each sediment trap and block and gravel inlet protection device when the storage capacity has been approximately 50% filled. Gravel will be cleaned or replaced when the sediment pool no longer drains properly.
4. Sediment will be removed from behind the silt fence when it becomes 0.5-foot deep at the fence. The silt fence will be repaired as necessary to maintain a barrier. Silt fence posts will be spaced 6-feet apart unless a wire backing is used with 8-foot post spacing.
5. All seeded areas will be fertilized, re-seeded and mulched as necessary according to the specifications provided on Sheet C.4.1 to maintain a vigorous, dense vegetative cover.

RIP-RAP ENERGY DISSIPATOR

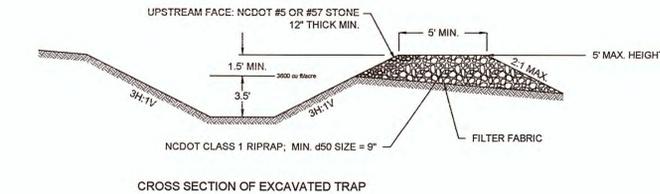
1. Construct the rip-rap energy dissipator to the dimensions shown in the table below.
2. Contractor shall excavate the basin area to allow for the thickness of stone specified, compact soil in the basin area and place filter fabric prior to placing stone.
3. Contractor shall provide a minimum of 4-inches of sand over the filter fabric if the stone will be placed using machinery. (to protect the filter fabric)
4. Seed and mulch areas which are disturbed during the installation of the dissipator.

Dimensions for Outlet Protection:

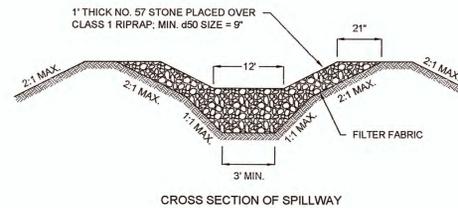
Outlet I.D.	Pipe Size (inches)	Minimum Rip-Rap Size (inches)	Maximum Rip-Rap Size (inches)	Length of Apron (feet)	Width of Apron (feet)	Thickness of Apron (inches)
G	15	4	5	9	10.3	7



RIP-RAP ENERGY DISSIPATOR  
NOT TO SCALE



CROSS SECTION OF EXCAVATED TRAP



CROSS SECTION OF SPILLWAY

TEMPORARY SEDIMENT TRAP  
NOT TO SCALE

THE SIZE AND LOCATION FOR THE TEMPORARY SEDIMENT TRAP IS SHOWN ON SHEET C.2.3. THE CONTRACTOR SHALL CONSTRUCT THE TRAP AT THIS LOCATION TO TRAP SEDIMENT RUNOFF DURING CONSTRUCTION.

THE CONTRACTOR SHALL BE REQUIRED TO CLEAN OUT THE SEDIMENT TRAPS WHEN APPROXIMATELY 0.5 FOOT OF SEDIMENT ACCUMULATES AT THE BASE OF THE OUTFALL EMBANKMENT.

PRIOR TO CONSTRUCTION OF THE SEDIMENT TRAP CONTRACTOR SHALL REMOVE TOPSOIL, ROOTS, AND OTHER MATERIALS NOT SUITABLE FOR THE FOUNDATION. CONTRACTOR SHALL THEN PLACE FILTER FABRIC ALONG THE EMBANKMENT PRIOR TO PLACING STONE.

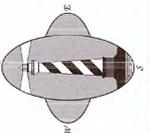
CONTRACTOR SHALL REMOVE THE SEDIMENT TRAP AFTER THE DISTURBED AREA HAS BEEN STABILIZED.

EROSION & SEDIMENT CONTROL DETAILS

MBD HAMPSTEAD  
U.S. HIGHWAY 17  
HAMPSTEAD, NORTH CAROLINA 28443  
EROSION & SEDIMENT CONTROL DETAILS

NO.	REVISION	DATE

HAGGETT ENGINEERING ASSOCIATES, INC.  
6368 MYRTLE GROVE ROAD  
WILMINGTON, NORTH CAROLINA 28409  
PHONE: (910) 397-0808  
LICENSE NO.: C-1111



DRAWING:  
**C.4.2**

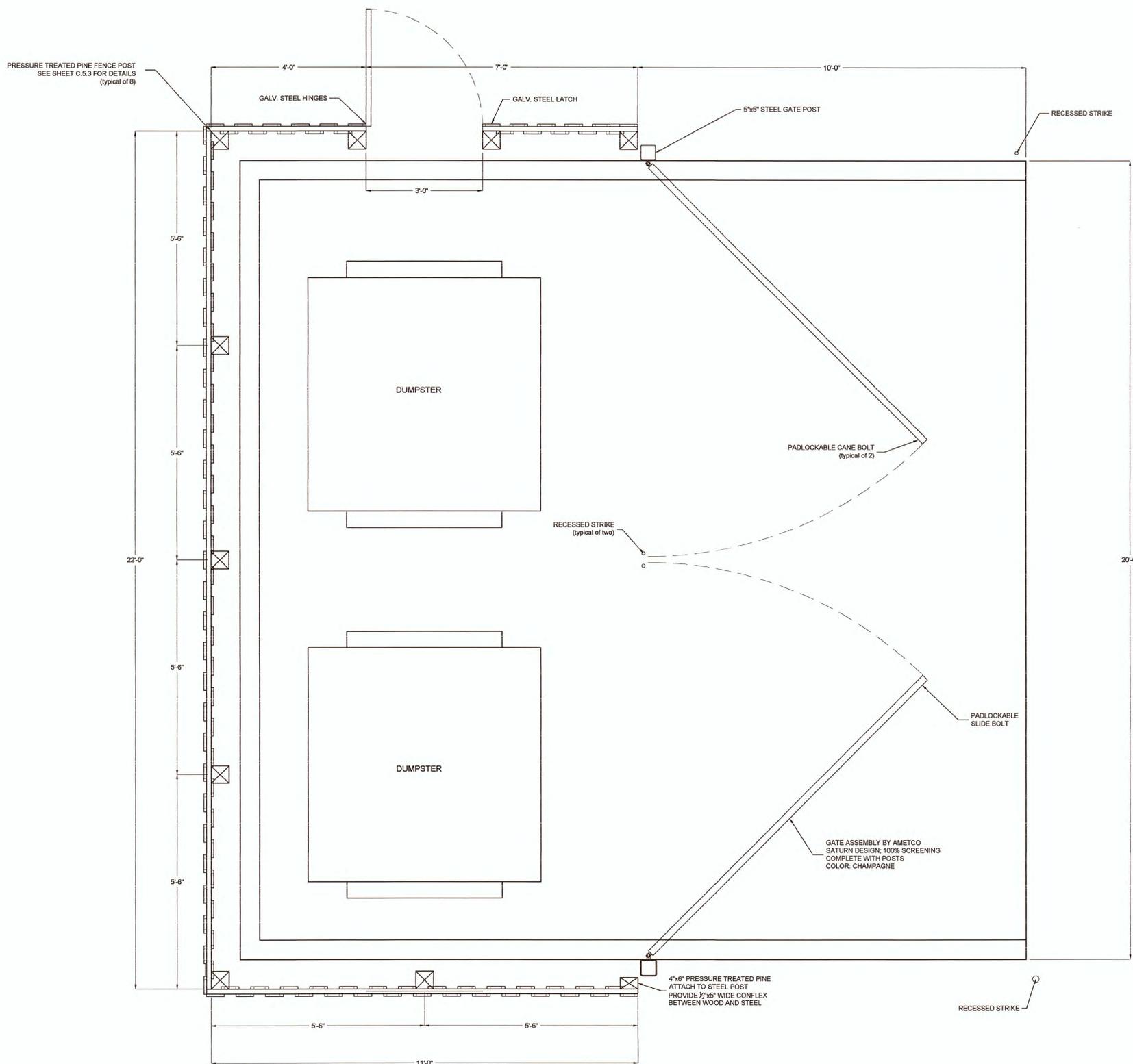




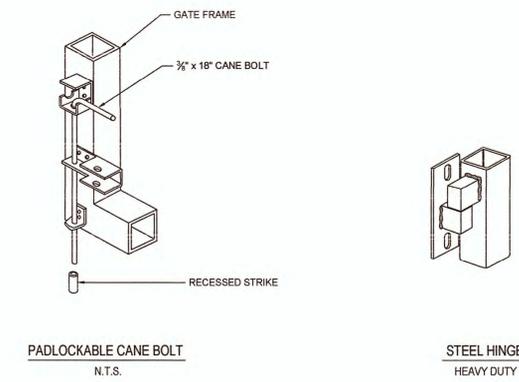




AMETCO MANUFACTURING CORPORATION  
 4326 HAMANN PARKWAY P.O. BOX 1210  
 WILLOUGHBY, OHIO 44096  
 800-321-7042 TOLL FREE  
 PHONE: (440) 951-4300  
 FAX: (440) 951-2542  
 www.ametco.com



DUMPSTER ENCLOSURE - PLAN VIEW

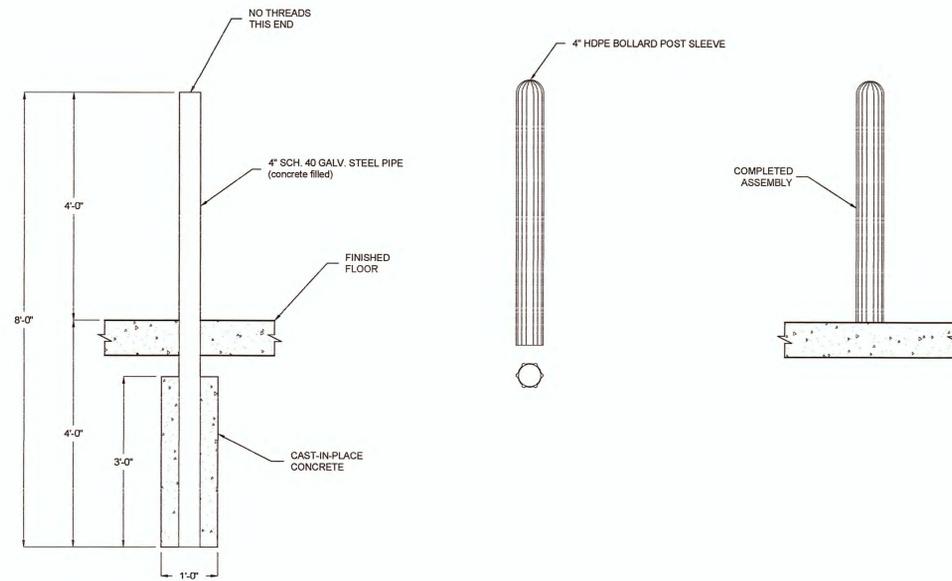


NOTES:  
 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.  
 2. DO NOT SCALE DRAWINGS.

SITE DETAILS

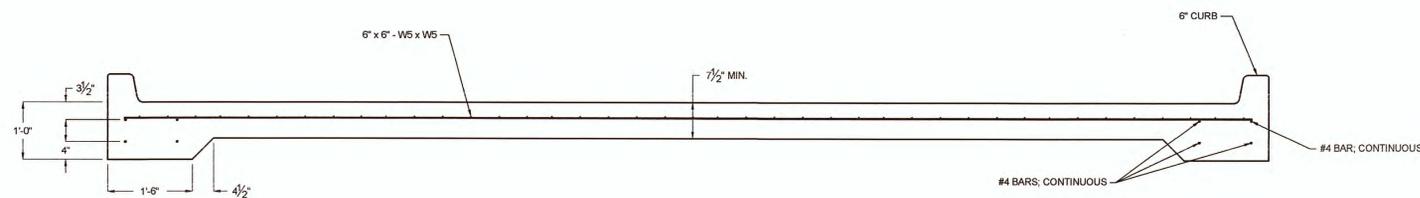
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MBD HAMPSTEAD U.S. HIGHWAY 17 HAMPSTEAD, NORTH CAROLINA 28443		DESIGN: DOUG HAGGETT CHECKED BY:	DATE: 10JUN2024 SCALE: AS SHOWN
PROJECT NO.: 22-1004		SITE DETAILS	
HAGGETT ENGINEERING ASSOCIATES, INC. 6368 MYRTLE GROVE ROAD WILMINGTON, NORTH CAROLINA 28409 PHONE: (910) 397-0808 LICENSE NO.: C-1111	NO.    REVISION    DATE		
		DRAWING: <b>C.5.3</b>	



**4-INCH PIPE BOLLARD WITH HDPE POST SLEEVE**

1. USE ONLY GALVANIZED STEEL PIPE FOR THE BOLLARD POST.
2. FILL BOLLARD POST TO TOP WITH CONCRETE; 3000 PSI MIN.
3. BOLLARD POST SHALL BE INSTALLED PLUMB; ± 1/8" IN 48 INCHES.
4. HIGH VISIBILITY YELLOW HDPE RIBBED POST SLEEVE. EAGLE PART NUMBER 1732.
5. TRIM LENGTH OF SLEEVE TO MATCH HEIGHT OF STEEL BOLLARD IF NEEDED.



**DUMPSTER ENCLOSURE - FOUNDATION**

- PROVIDE 8 INCHES COMPACTED ABC STONE UNDER FOUNDATION.  
 CONCRETE MINIMUM STRENGTH: 4,000 PSI @ 28 DAYS.  
 DEFORMED REINFORCING BARS TO BE 60,000 PSI YIELD STRENGTH.  
 REINFORCEMENT: #4 BARS AND 6" x 6" - W5 x W5 WWF.  
 PROVIDE A MINIMUM 24 INCH LAP FOR #4 BARS AT SPLICE LOCATIONS.

**INSTALLATION OF WELDED WIRE REINFORCEMENT**

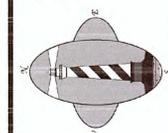
1. WHEN WWR ROLLS ARE USED, ROLLS SHALL BE UNROLLED, CUT TO PROPER LENGTH AND TURNED OVER TO PREVENT THE ENDS FROM CURLING.
2. FLATTENING OF THE WWR IS BEST ACCOMPLISHED MECHANICALLY (ROLLER STRAIGHTENER) WHICH WILL PROVIDE THE NECESSARY FLATNESS TO ACHIEVE PROPER POSITIONING.
3. ALL WWR SHALL BE PLACED ON SUPPORT ACCESSORIES TO MAINTAIN THE REQUIRED POSITION AND COVER AS SPECIFIED ON THE APPROVED PLANS.
4. WWR SHALL NOT BE PLACED ON THE SUB GRADE AND PULLED UP DURING CONCRETE PLACEMENT.
5. SUPPORT ACCESSORIES MAY BE STEEL (COATED OR UNCOATED) AND PLASTIC CHAIRS, BOLSTERS AND WWR SUPPORT ACCESSORIES MADE SPECIFICALLY FOR SINGLE OR DOUBLE LAYER REINFORCING APPLICATIONS.
6. SUPPORT ACCESSORIES SHALL BE SPACED 3' TO 4' APART WHEN USING MEDIUM WWR STYLES; W5 OR D5 TO W8 OR D8.
7. DO NOT PLACE CONCRETE UNTIL THE ENGINEER HAS INSPECTED AND APPROVED THE PLACEMENT OF THE REINFORCEMENT.

**SITE DETAILS**

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NO.	REVISION	DATE

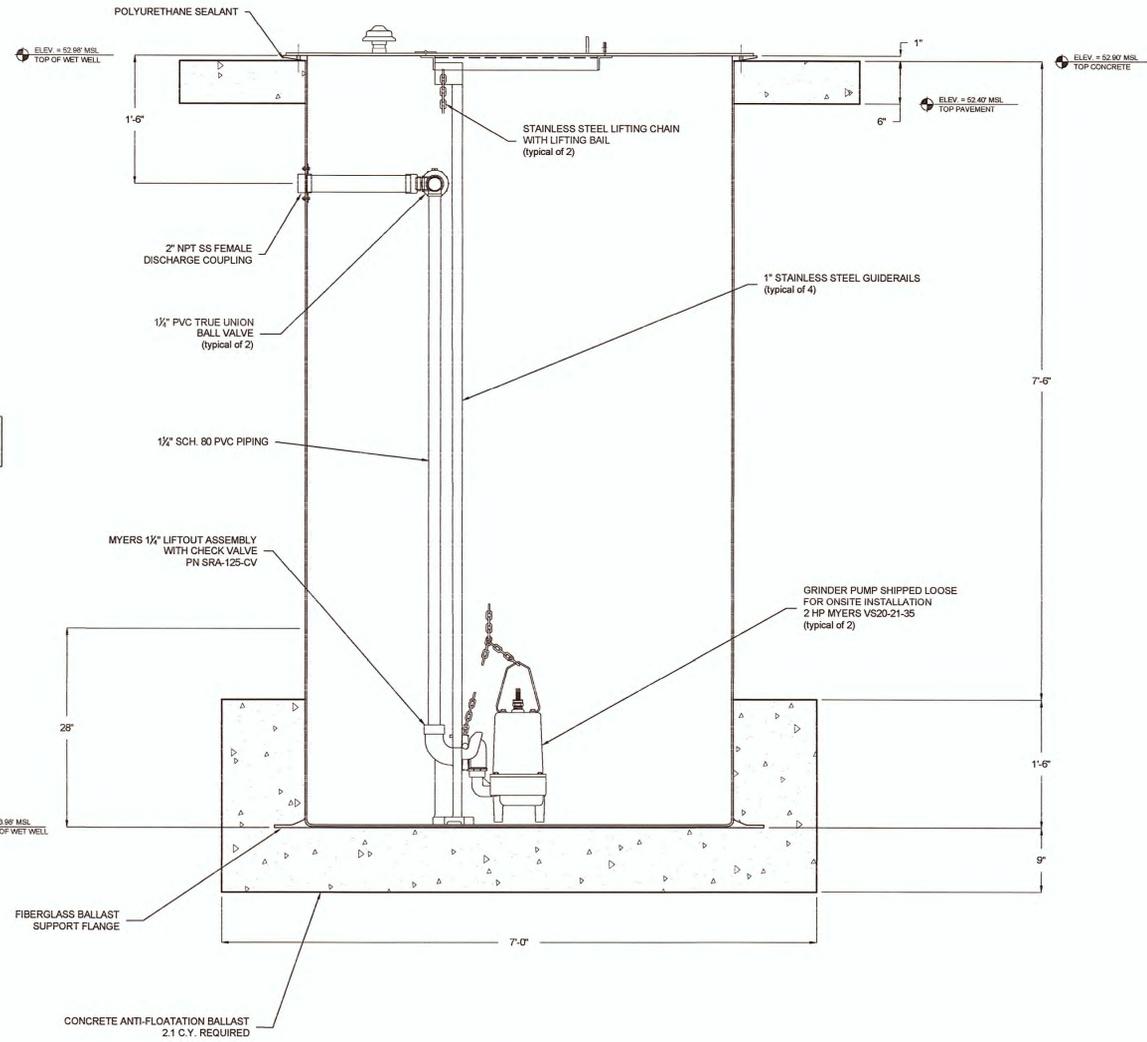
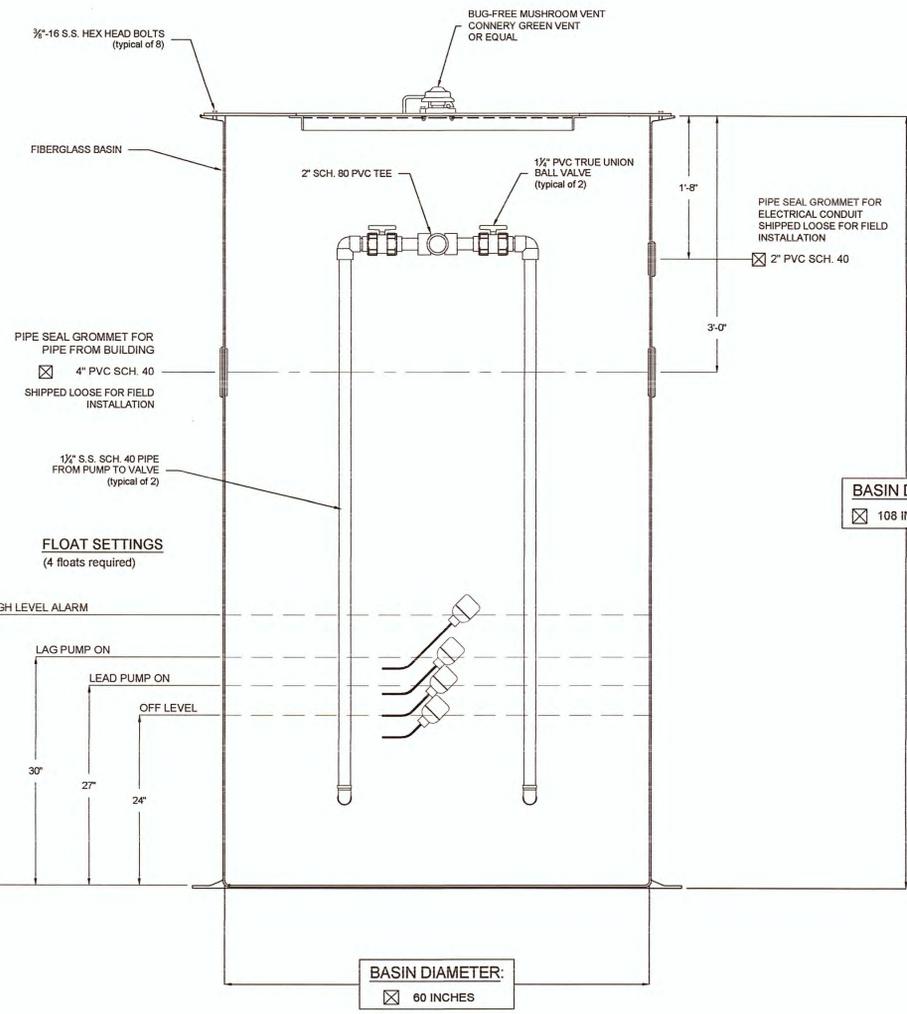
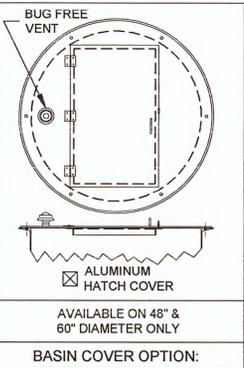
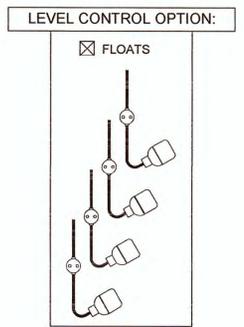
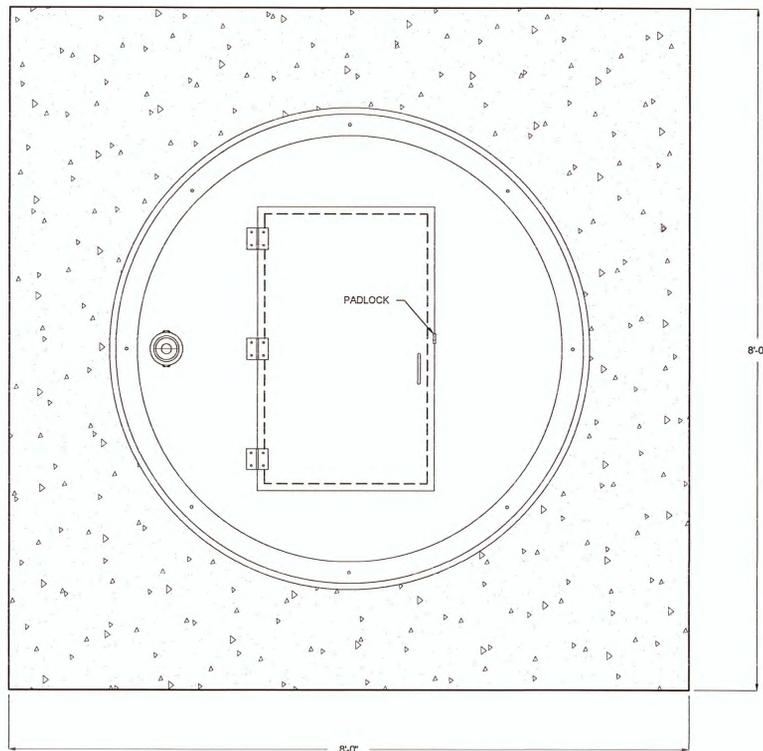
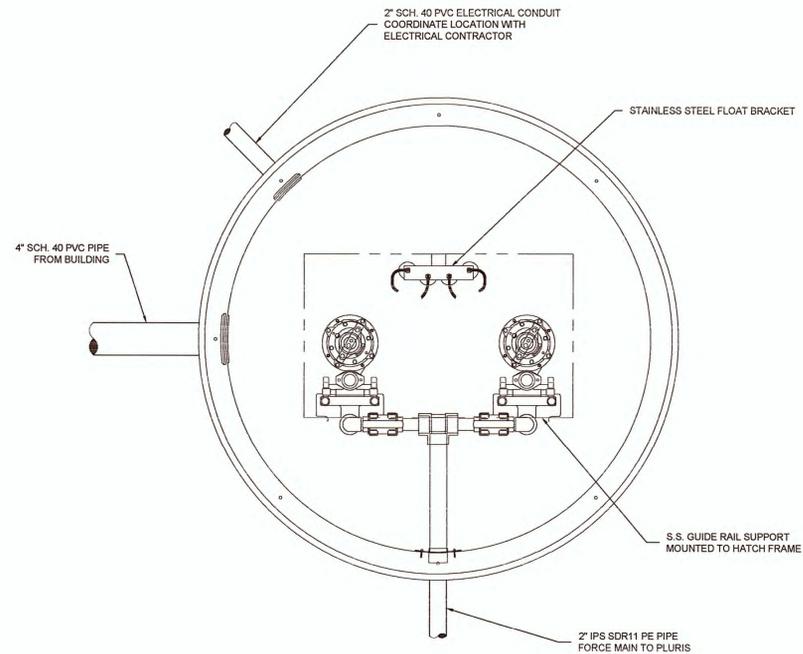
HAGGETT ENGINEERING ASSOCIATES, INC.  
 6388 MYRTLE GROVE ROAD  
 WILMINGTON, NORTH CAROLINA 28409  
 PHONE: (910) 397-0808  
 LICENSE NO.: C-1111



DRAWING: **C.5.4**

MBD HAMPSTEAD  
 U.S. HIGHWAY 17  
 HAMPSTEAD, NORTH CAROLINA 28443  
 SITE DETAILS  
 DESIGN: DOUG HAGGETT  
 CHECKED BY:  
 DATE: 10JUN2024  
 SCALE: AS SHOWN





**MBD HAMPSTEAD**  
U.S. HIGHWAY 17  
HAMPSTEAD, NORTH CAROLINA 28443  
DUPLIX PUMP STATION DETAILS

DESIGN: DOUG HAGGETT  
CHECKED BY:  
DATE: 10/JUN/2024  
SCALE: AS SHOWN

NO.	REVISION	DATE

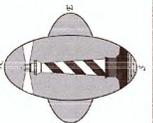
**HAGGETT ENGINEERING ASSOCIATES, INC.**  
6388 MYRTLE GROVE ROAD  
WILMINGTON, NORTH CAROLINA 28409  
PHONE: (910) 397-0808  
LICENSE NO.: C-1111

**Myers**  
Pentair Pump Group

REPRESENTED BY:



930 Culp Road  
Pineville, NC 28134  
Phone: (704) 504-3111  
Contact: Justin Hewitt



**DRAWING:**  
**C.6.1**





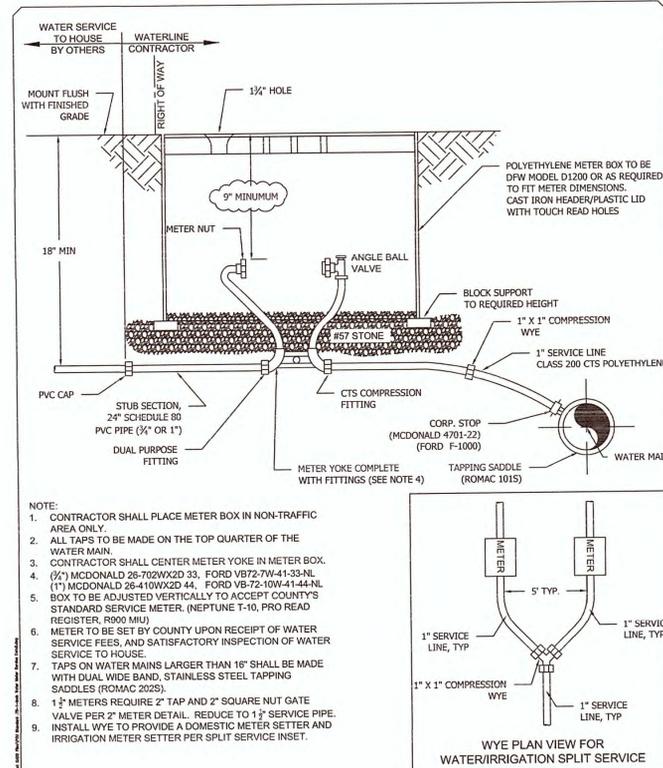
PCU STANDARD NOTES

1. A PRE-CONSTRUCTION MEETING IS REQUIRED BEFORE BEGINNING WORK. THE MEETING MUST BE SCHEDULED WITH PENDER COUNTY UTILITIES (PCU) AT LEAST ONE WEEK IN ADVANCE. ATTENDEES MUST INCLUDE PCU, THE UTILITY CONTRACTOR'S SUPERINTENDENT, THE SUPPLIER, AND THE CONSULTING ENGINEER.
2. ALL MATERIALS USED SHALL CONFORM TO PENDER COUNTY UTILITIES REQUIREMENTS. NON-CONFORMING MATERIAL WILL NOT BE ACCEPTED FOR FINAL CERTIFICATION.
3. ALL PIPE SHALL BE C900 CR18 PVC, UNLESS OTHERWISE NOTED (SEE PCU STANDARD DETAIL). PCU MUST APPROVE THE USE OF DIP IN THE FIELD BEFORE INSTALLATION. PIPE SHOULD NEVER BE UNDER THE ROADWAY, PARKING LOT, OR SIDEWALKS. PENDER COUNTY UTILITIES DOES NOT ALLOW SIZE-ON-SIZE TAPS.
4. PCU STANDARD WATERLINE PIPE RESTRAINING METHOD IS MEGA LUGS. AT A MINIMUM ALL FITTINGS, VALVES, ETC. MUST BE RESTRAINED (SEE PCU STANDARD DETAIL).
5. PCU MUST INSPECT CASING INSTALLATIONS PRIOR TO BACKFILL. PCU MUST WITNESS PRESSURE TESTS, AND WITHDRAWAL OF BACTERIOLOGICAL SMPLES. CONTACT PENDER COUNTY UTILITIES INSPECTOR TO SCHEDULE.
6. CLOSE-OUT DOCUMENTS WHICH MUST BE RECEIVED PRIOR TO PCU SIGNING THE NCDEQ PWSS APPLICANT CERTIFICATION INCLUDE: BACTERIOLOGICAL TESTS, PRESSURE TESTS, DEED OF DEDICATION, AFFIDAVIT/RELEASE OF LIENS, WARRANTY, AND RECORDS DRAWINGS (PDF & GIO REFERENCED CAD).
7. AN 18-MONTH WARRANTY PERIOD APPLIES TO ALL WATERLINE CONSTRUCTION. THIS WARRANTY PERIOD DOES NOT BEGIN UNTIL FINAL APPROVAL OF THE SYSTEM HAS BEEN RECEIVED FROM NCDEQ PWSS.

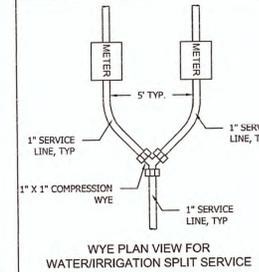
PENDER COUNTY UTILITIES  
605 E FREMONT STREET  
PO BOX 995, BURGAW, NC 28425



STANDARD NOTES  
PCU WATER SYSTEMS  
VERSION #4 - OCTOBER 2023



- NOTE:
1. CONTRACTOR SHALL PLACE METER BOX IN NON-TRAFFIC AREA ONLY.
  2. ALL TAPS TO BE MADE ON THE TOP QUARTER OF THE WATER MAIN.
  3. CONTRACTOR SHALL CENTER METER YOKE IN METER BOX.
  4. (1/2") MCDONALD 28-702WX2D 33, FORD VB72-7W-41-33-NL (1") MCDONALD 28-410WX2D 44, FORD VB-72-10W-41-44-NL
  5. BOX TO BE ADJUSTED VERTICALLY TO ACCEPT COUNTY'S STANDARD SERVICE METER, (NEPTUNE T-10, PRO READ REGISTER, R900 MIU)
  6. METER TO BE SET BY COUNTY UPON RECEIPT OF WATER SERVICE FEES, AND SATISFACTORY INSPECTION OF WATER SERVICE TO HOUSE.
  7. TAPS ON WATER MAINS LARGER THAN 16" SHALL BE MADE WITH DUAL WIDE BAND, STAINLESS STEEL TAPPING SADDLES (ROMAC 202S).
  8. 1 1/2" METERS REQUIRE 2" TAP AND 2" SQUARE NUT GATE VALVE PER 2" METER DETAIL. REDUCE TO 1 1/2" SERVICE PIPE.
  9. INSTALL WYE TO PROVIDE A DOMESTIC METER SETTER AND IRRIGATION METER SETTER PER SPLIT SERVICE INSET.

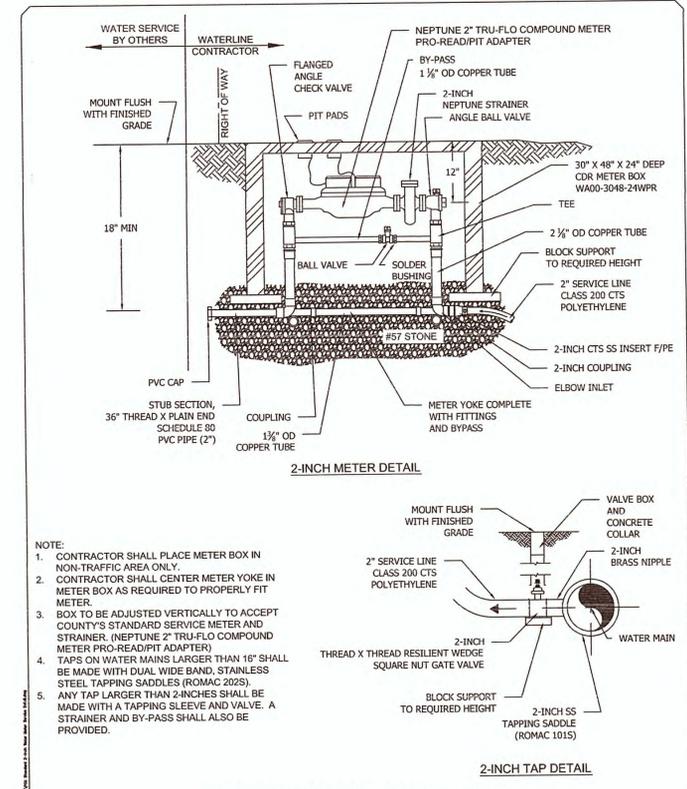


STANDARD WATER SERVICE DETAIL  
NOT TO SCALE

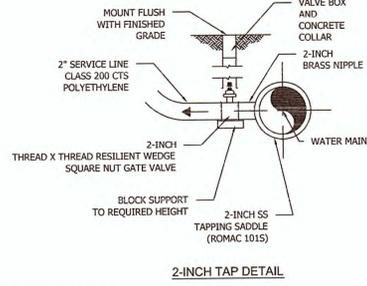
PENDER COUNTY UTILITIES  
605 EAST FREMONT STREET  
BURGAW, NC 28425



WATER SERVICE (3/4" - 1")  
STANDARD DETAIL  
VERSION #4 - FEB 2016



- NOTE:
1. CONTRACTOR SHALL PLACE METER BOX IN NON-TRAFFIC AREA ONLY.
  2. CONTRACTOR SHALL CENTER METER YOKE IN METER BOX AS REQUIRED TO PROPERLY FIT METER.
  3. BOX TO BE ADJUSTED VERTICALLY TO ACCEPT COUNTY'S STANDARD SERVICE METER AND STRAINER. (NEPTUNE 2" TRU-FLO COMPOUND METER PRO-READ/PIT ADAPTER)
  4. TAPS ON WATER MAINS LARGER THAN 16" SHALL BE MADE WITH DUAL WIDE BAND, STAINLESS STEEL TAPPING SADDLES (ROMAC 202S).
  5. ANY TAP LARGER THAN 2-INCHES SHALL BE MADE WITH A TAPPING SLEEVE AND VALVE. A STRAINER AND BY-PASS SHALL ALSO BE PROVIDED.

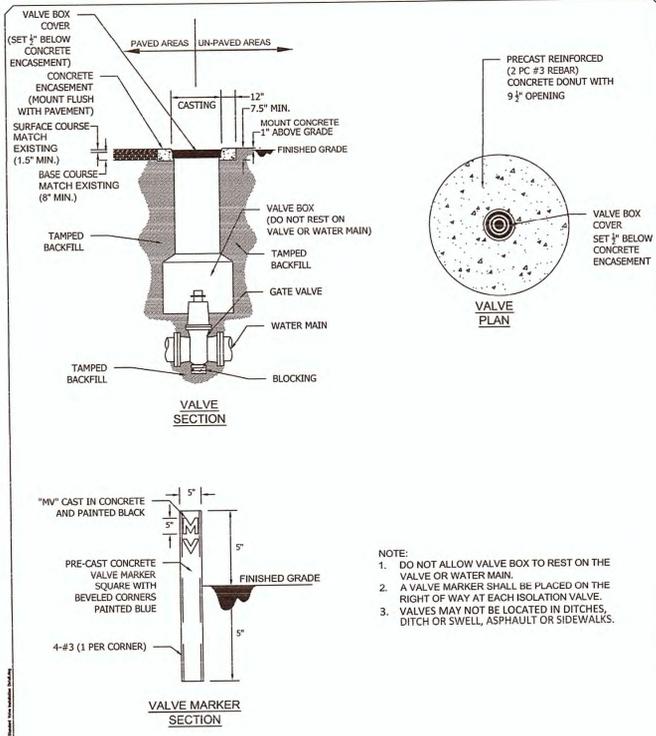


STANDARD 2-INCH WATER SERVICE DETAIL  
NOT TO SCALE

PENDER COUNTY UTILITIES  
605 EAST FREMONT STREET  
BURGAW, NC 28425



2-INCH WATER SERVICE  
STANDARD DETAIL  
VERSION #1 - AUGUST 2010



- NOTE:
1. DO NOT ALLOW VALVE BOX TO REST ON THE VALVE OR WATER MAIN.
  2. A VALVE MARKER SHALL BE PLACED ON THE RIGHT OF WAY AT EACH ISOLATION VALVE.
  3. VALVES MAY NOT BE LOCATED IN DITCHES, DITCH OR SWELL, ASPHALT OR SIDEWALKS.

VALVE INSTALLATION DETAIL  
NOT TO SCALE

PENDER COUNTY UTILITIES  
605 EAST FREMONT STREET  
BURGAW, NC 28425

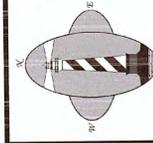


VALVE INSTALLATION  
STANDARD DETAIL  
VERSION #3 - JUNE 2016

MBD HAMPSTEAD  
U.S. HIGHWAY 17  
HAMPSTEAD, NORTH CAROLINA 28443  
PENDER COUNTY WATER DETAILS

NO.	REVISION	DATE

HAGGETT ENGINEERING ASSOCIATES, INC.  
6388 MYRTLE GROVE ROAD  
WILMINGTON, NORTH CAROLINA 28409  
PHONE: (910) 397-0808  
LICENSE NO.: C-111



DRAWING: **D.1**

### ENGLISH STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E', AND 'F' SIGNS ON 'U' CHANNEL POSTS

**FRAMING AND CROSS-BRACING DETAILS**  
TYPE "D" SIGNS

**FRAMING AND CROSS-BRACING DETAILS**  
TYPE "F" SIGNS

**FRAMING AND CROSS-BRACING DETAILS**  
FOR COMBINATION TYPE "D" & "E" SIGNS

**FRAMING AND CROSS-BRACING DETAILS**  
FOR COMBINATION TYPE "D" & "F" SIGNS

**TYPICAL SIGN SHAPES AND COMBINATIONS**

**NOTES:**

- ERECT TYPE "D", "E", AND "F" SIGNS ON FREEWAYS WITH THE NEAR EDGE OF THE SIGN 20 FT. FROM THE TRAVEL LANE. ERECT ALL OTHER "D", "E", AND "F" SIGNS WITH THE NEAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER BREAK (6 FT. MINIMUM CLEARANCE, 12 FT. DESIRABLE, FROM THE EDGE OF TRAVEL LANE), OR AS DIMENSIONED ON PLAN SHEETS.
- ERECT TYPE "D", "E", AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE TRAVEL LANE ON ROADS WITH 2 OR MORE LANES AND AT LEAST 5 FT. ON OTHER ROUTES. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
- THE VERTICAL DIMENSION BETWEEN MOUNTING HOLE CENTERS ON ALL TYPES "D", "E", AND "F" SIGNS IS 30" MAXIMUM. THE VERTICAL AND HORIZONTAL DIMENSIONS BETWEEN MOUNTING HOLES IS TO THE WHOLE INCH. EACH SIGN PANEL HAS A MINIMUM OF 2 BOLTS PER SUPPORT.
- ATTACH SIGN W/ 5/16" HEX HEAD BOLT, NYLON WASHER, SHIM, FLAT WASHER, LOCK WASHER, HEX NUT NO BUCKLING OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEET# 2 OF 904.50.
- FURNISH AND INSTALL CROSS-BRACING AS SHOWN IN DETAIL. PAINT ENDS OF CROSS BRACES W/ APPROVED. ZINC PAINT
- INSTALL POST AND CROSS-BRACING WITH THE WIDE SIDE OF THE FLANGE TOWARD THE BACK OF SIGN(S) FOR COMBINATION TYPE "D" AND "F" SIGNS.
- THE SHIELD HEIGHTS IN THESE ASSEMBLIES CAN NOT BE LARGER THAN 24".
- IF SIGN ASSEMBLIES REQUIRE MORE THAN TWO U-CHANNEL SUPPORTS, THE SUPPORTS SHALL BE PLACED A MINIMUM OF 4 FT. BETWEEN POSTS. NO MORE THAN TWO POSTS SHALL FALL WITHIN 7 FT. PATH, OR THE SIGN ASSEMBLY MUST BE PLACED BEHIND BARRIER PROTECTION.

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

1-18

SHEET 1 OF 2  
**904.50**

### ENGLISH STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E', AND 'F' SIGNS ON 'U' CHANNEL POSTS

**TYPE "E" SIGNS**

**TYPE "D" SIGNS**

**TYPE "E" AND "F" SIGNS**

	NO. SUPPORTS		
	2	3 *	4 *
P	.207W	.145W	.107W
R	.586W	.395W	.262W

UNITS ON ATTACHED SHEET  
\* MINIMUM 4 FT. BETWEEN CHANNEL POSTS

**HOLE PUNCHING DETAIL**

**ASSEMBLY DETAIL**

**DETAIL FOR INSTALLATION OF CHANNEL POST IN CONCRETE**

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

1-18

SHEET 2 OF 2  
**904.50**

### ROADWAY STANDARD DRAWING FOR PAVEMENT MARKINGS LINE TYPES AND OFFSETS

**CONTINUOUS LINES**

- EDGE LINE: YELLOW OR WHITE, 4" / 6"
- LANE LINE: WHITE, 4" / 6"
- CENTER LINE: YELLOW, 4" / 6"
- GORE LINE: WHITE, 8" / 12"
- DIAGONAL LINE: YELLOW OR WHITE, 12" 45 MPH OR HIGHER, 8" LESS THAN 45 MPH
- CROSSWALK LINE: WHITE, 8" TRANSVERSE, 24" LONGITUDINAL
- RXR LINE: WHITE, 16"
- STOP OR TRANSVERSE BAR: WHITE, 24"

**10'-30'/SP SKIP LINE**

UNLESS OTHERWISE SHOWN, USE 10'-30'/SP SKIP LINES FOR SKIP LANE LINES AND SKIP CENTER LINES.

**2'-6'/SP MINI-SKIP LINE**

UNLESS OTHERWISE SHOWN, USE 2'-6'/SP MINI-SKIP LINES FOR LANE LINE EXTENSIONS THROUGH INTERSECTIONS, EDGE LINE EXTENSIONS THROUGH INTERSECTIONS AND MINI-SKIPS USED FOR BICYCLE LANE LINES.

**3'-3'/SP MINI-SKIP LINE**

UNLESS OTHERWISE SHOWN, USE 3'-3'/SP MINI-SKIP LINES FOR THE WHITE EDGE LINE EXTENSIONS AT ROUNDABOUTS.

**3'-9'/SP MINI-SKIP LINE**

UNLESS OTHERWISE SHOWN, USE 3'-9'/SP MINI-SKIP LINES FOR MINI-SKIP LANE LINES AND LINE EXTENSIONS THROUGH TAPERS.

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

1-18

SHEET 1 OF 2  
**1205.01**

### ROADWAY STANDARD DRAWING FOR PAVEMENT MARKINGS PEDESTRIAN CROSSWALKS

**CROSSWALK PLACEMENT GUIDANCE**

**DETAIL 'A' - DUAL CURB RAMPS**

**DETAIL 'B' - SINGLE DIAGONAL CURB RAMP**

**DETAIL 'C' - HI-VISIBILITY CROSSWALK**

**GENERAL NOTES:**

- USE THE DETAILS ABOVE AND THE FOLLOWING NOTES FOR GUIDANCE IN PLACING CROSSWALK MARKINGS. REFER TO NCDOT ROADWAY STANDARD DRAWINGS, MUTCD AND ADA STANDARDS FOR ADDITIONAL GUIDANCE.
- THE LOCATION AND TYPE OF CROSSWALK MARKINGS SHOWN ON THE ABOVE DETAILS ARE FOR REFERENCE ONLY. LOCATE CROSSWALK MARKINGS AS SHOWN ON THE PROJECT DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER. THE CROSSWALK MARKING TYPE, STANDARD OR HI-VISIBILITY, SHALL BE INSTALLED AS SPECIFIED ON THE PROJECT DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER.
- THE STANDARD CROSSWALK IS TWO WHITE 8" MIN. TRANSVERSE LINES WITH A 6" MIN. GAP BETWEEN THE LINES. THE HI-VISIBILITY CROSSWALK IS WHITE 24" MAX. WIDE LONGITUDINAL LINES WITH 24" MIN. GAPS BETWEEN LINES, SEE DETAIL 'C'. HI-VISIBILITY CROSSWALKS SHOULD BE A MINIMUM OF 6' WIDE. CURB RAMPS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARES.
- STOP BARS SHOULD BE PLACED A 4' MIN. IN ADVANCE OF NEAREST CROSSWALK LINE.
- SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL IS 4' MIN.
- BEYOND THE BOTTOM GRADE BREAK, A CLEAR SPACE OF 4' X 4' MIN. SHALL BE PROVIDED WITHIN THE MARKINGS.
- SINGLE DIAGONAL CURB RAMPS WITH FLARED SIDES SHALL HAVE A SEGMENT OF CURB 2' MIN. LONG LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING, SEE DETAIL 'B'.
- CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE LATEST NCDOT ROADWAY STANDARD DRAWINGS. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR DETAILS OR A SPECIAL DESIGN.

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
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1-18

SHEET 1 OF 1  
**1205.07**

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

1-18

ENGLISH STANDARD DRAWING FOR MOUNTING OF TYPE 'D', 'E', AND 'F' SIGNS ON 'U' CHANNEL POSTS

SHEET 2 OF 2  
**904.50**

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

1-18

ROADWAY STANDARD DRAWING FOR PAVEMENT MARKINGS PEDESTRIAN CROSSWALKS

SHEET 1 OF 1  
**1205.07**

MBD HAMPSTEAD  
U.S. HIGHWAY 17  
HAMPSTEAD, NORTH CAROLINA 28443

PAVEMENT SIGN & MARKING DETAILS

DESIGN: DOUG HAGGETT  
CHECKED BY: \_\_\_\_\_  
DATE: 10JUN2024  
SCALE: AS SHOWN

HAGGETT ENGINEERING ASSOCIATES, INC.  
6368 MYRTLE GROVE ROAD  
WILMINGTON, NORTH CAROLINA 28409  
PHONE: (910) 397-0808  
LICENSE NO.: C-11111

DRAWING: **D.2**



### Outdoor Lighting



**PEDESTRIAN SHOEBOX LED**  
(Mounts Dark Sky Compliant)

**Light source:** LED (included)  
**Wattage:** 50 watts  
**Lumens:** 6,105 | 6,105  
**Light pattern:** LED Type IV  
**IESNA cutoff classification:** Full cutoff  
**BUG rating:** Type IV - B1U0G2  
**Color temperature:** 3,000K | 4,000K

**Mounting height:** 12' - 17'

**Color:** Black

**Pole:** Aluminum, Flangeless, Concrete, Decorative aluminum

**Applications:** Neighborhoods, Parks, Shopping centers



**POLE AVAILABLE:** ALUMINUM, FLANGELESS, CONCRETE, DECORATIVE ALUMINUM

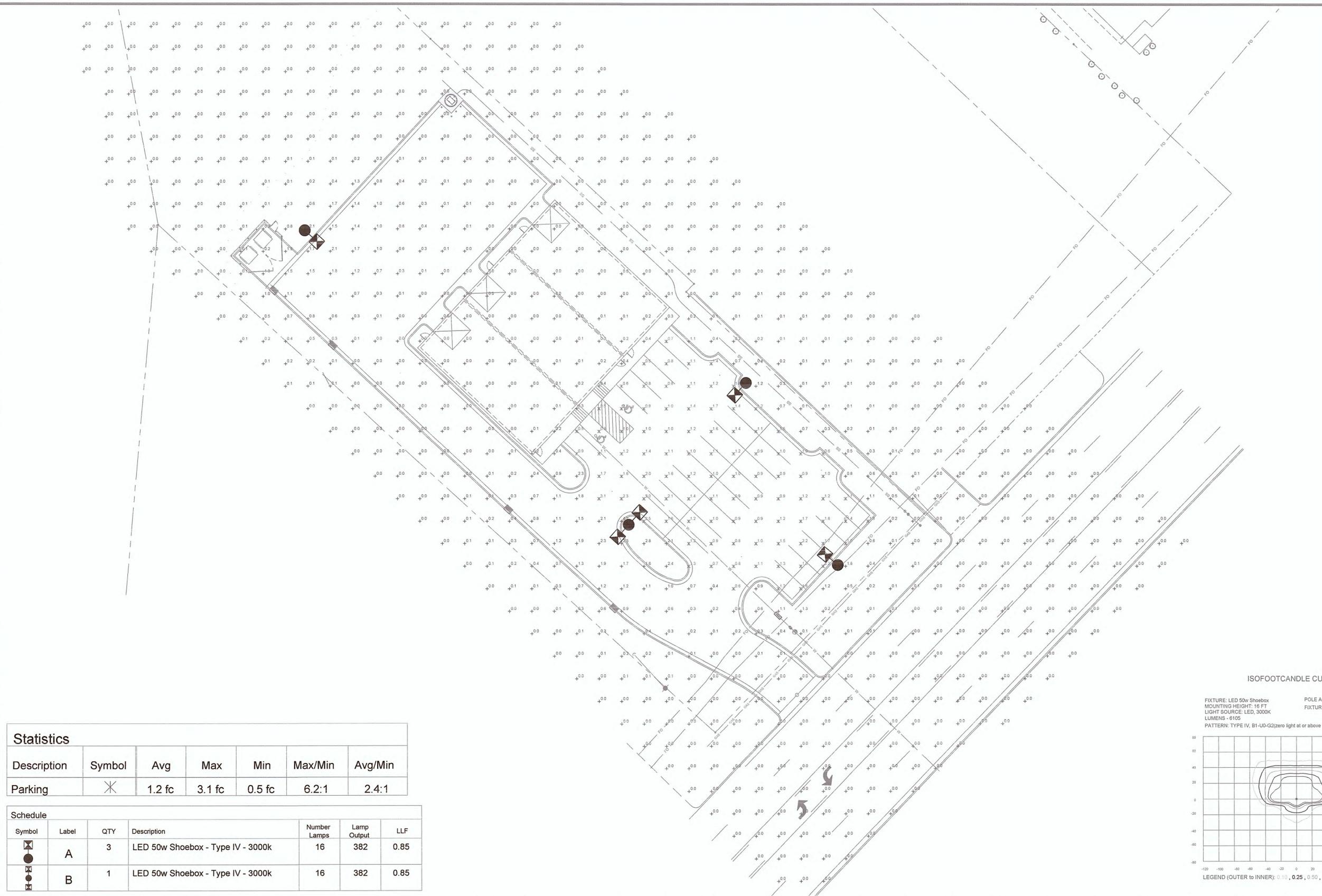
**MOUNTING HEIGHT:** 12', 15', 17', 18'

**COLOR:** Black, Black, Black, Black

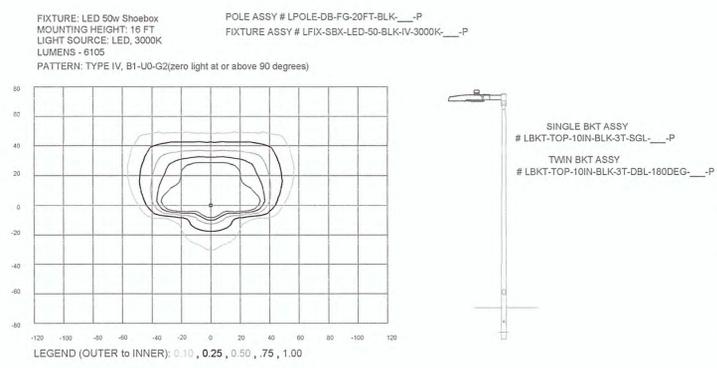
**FEATURES:** Tamper operation, Little or no installation cost, Design warranty by lighting professionals included, Maintenance, electricity & warranty included, One line monthly read on your electric bill

**BENEFITS:** Provides basic free installation and service, Free to call for other projects, Meets industry standards and lighting ordinances, Eliminates high and unexpected repair bills, Convenience and savings for you

For additional information, contact us at 1-800-444-4444 or dukeenergy.com

ISOFOOTCANDLE CURVES



Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Parking	⊗	1.2 fc	3.1 fc	0.5 fc	6.2:1	2.4:1

Schedule						
Symbol	Label	QTY	Description	Number Lamps	Lamp Output	LLF
⊗	A	3	LED 50w Shoebox - Type IV - 3000k	16	382	0.85
●	B	1	LED 50w Shoebox - Type IV - 3000k	16	382	0.85

**LIGHTING DESIGN TOLERANCE**

The calculated footcandle light levels in this lighting design are predicted values and are based on specific information that has been supplied to Duke Energy. Any inaccuracies in the supplied information, differences in luminaire installation, lighted area geometry including elevation differences, reflective properties of surrounding surfaces, obstructions (foliage or otherwise) in the lighted area, or lighting from sources other than listed in this design may produce different results from the predicted values. Normal tolerances of voltage, lamp output, and ballast and luminaire manufacture will also affect results.



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HWY 17 HAMPSTEAD	
Hampstead, NC	
SITE LIGHTING ARRANGEMENT	
Designed by	DUKE ENERGY PROGRESS LIGHTING SOLUTIONS
Reviewed by	N. Johnson
Date	06/10/2024
Description	LED Pedestrian Shoebox
Drawing No.	24-0237A
Sht.	1 OF 1

NO.	DATE	REVISION	BY