

# MIDDLE CREEK REGIONAL PUMP STATION, FORCE MAIN,

# & INTERCEPTOR

## MFW INVESTMENTS, LLC APEX, NORTH CAROLINA

### CERTIFICATION STATEMENTS:

#### BUILDING INSPECTION TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Building Inspection Department, and to the best of my knowledge and belief, conforms to the requirements established within the Town's Code of Ordinances and the North Carolina State Building Codes. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *Shirley Owen* Date: 3/14/19

#### PUBLIC WORKS TRANSPORTATION TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex, and to the best of my knowledge and belief, provides an acceptable transportation system with consideration for the elements contained within the Transportation Plan conforming to the requirements established in the Standard Specifications of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *Kristina Doherty* Date: 3/25/19

#### ELECTRIC TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Electric Utilities Department, and to the best of my knowledge and belief, conforms to the requirements established in the Standard Specifications and Construction Details and the Unified Development Ordinance of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *Roby Sosa* Date: 3/11/19

#### WATER RESOURCES SOIL EROSION & SEDIMENTATION CONTROL TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex, and to the best of my knowledge and belief, conforms to the requirements established in the Soil Erosion and Sedimentation Control Ordinance of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *Mark Tate* Date: 3-22-19

#### FIRE DEPARTMENT TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Fire Department, and to the best of my knowledge and belief, conforms to the requirements established within the Town's Standard Specifications, Fire Protection Ordinances, and the North Carolina International Fire Code. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *John Huggins* Date: 3/15/19

#### WATER RESOURCES STORMWATER ENGINEERING TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Public Water Resources Stormwater & Utility Engineering Division and to the best of my knowledge and belief, conforms to the requirements established in the Standard Specifications and Construction Details and the Unified Development Ordinance of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements. This signature serves as the stormwater permit for this project.

By: *Mark Tate* Date: 3/15/19

#### PARKS, RECREATION, AND CULTURAL RESOURCES TOWN OF APEX CERTIFICATION

These plans have been reviewed by the Town of Apex, and to the best of my knowledge and belief, conform to representations made by the developer to myself and the Parks, Recreation, and Cultural Resource Advisory Commission consistent with the project's requirements for public Parks and Recreation, either in total or in part, as outlined in Section 7.3 of the Town's Unified Development Ordinance and Article IV, Section 19 of the Town Code. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *John Huggins* Date: 3/11/19

#### WATER RESOURCES UTILITY ENGINEERING TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Water Resources Department, and to the best of my knowledge and belief, conforms to the requirements established in the Standard Specifications and Construction Details of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *John Huggins* Date: 3/15/19

#### PLANNING/ZONING TOWN OF APEX CERTIFICATION

This construction drawing has been reviewed by the Town of Apex Planning Department, and to the best of my knowledge and belief, conforms to the Subdivision or Site Plan that was approved by the Town of Apex Board of Commissioners, and meets the Town of Apex Zoning, Subdivision, or Unified Development Ordinance. This signature does not constitute a variance from any requirements of the originally approved Subdivision or Site Plan cited above, or any federal, state, or local code, law, specification, rule, guideline, or ordinance. It is the sole responsibility of the owner/developer, or any of his agents or contract professionals to ensure that this construction plan meets all the aforementioned requirements.

By: *Ally May* Date: 3/19/19

### NOTE TO CONTRACTORS

THIS PROJECT REQUIRED A MINOR SITE PLAN APPROVAL FROM THE TOWN OF APEX, IN ADDITION TO THE TOWN'S APPROVAL OF THE CONSTRUCTION PLANS AND SPECIFICATIONS. YOU WILL BE REQUIRED TO COMPLY WITH ALL CONDITIONS AND REQUIREMENTS, AND TO PROVIDE ALL EQUIPMENT AND CONSTRUCTION, AS SHOWN ON BOTH THE APPROVED MINOR SITE PLANS (DRAWINGS MSP1 THROUGH MSP8) AND THE APPROVED CONSTRUCTION PLANS (DRAWINGS 1 THROUGH 33). YOU WILL ALSO BE REQUIRED TO COMPLY WITH THE APPROVED PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS.

### PROJECT DATA

#### PROJECT NAME

MIDDLE CREEK BASIN REGIONAL PUMP STATION  
3356 COLBY CHASE DR.  
PIN: 0750.01-17-6279 & 0750.01-26-4926

#### PREPARER

DIEHL & PHILLIPS, P.A.  
1500 PINEY PLAINS RD., SUITE 200, CARY, NC 27518  
PHONE: 919-467-9972 FAX: 919-467-5327  
EMAIL: JPHILLIPS@BELLSOUTH.NET

#### OWNER

MFW INVESTMENTS, LLC  
114 BIRKLANDS DRIVE, CARY, NC 27518  
PHONE: 919-801-3905  
EMAIL: MWHITEHEAD@MACGREGORDEV.COM

#### CONTRACT PURCHASER - NA

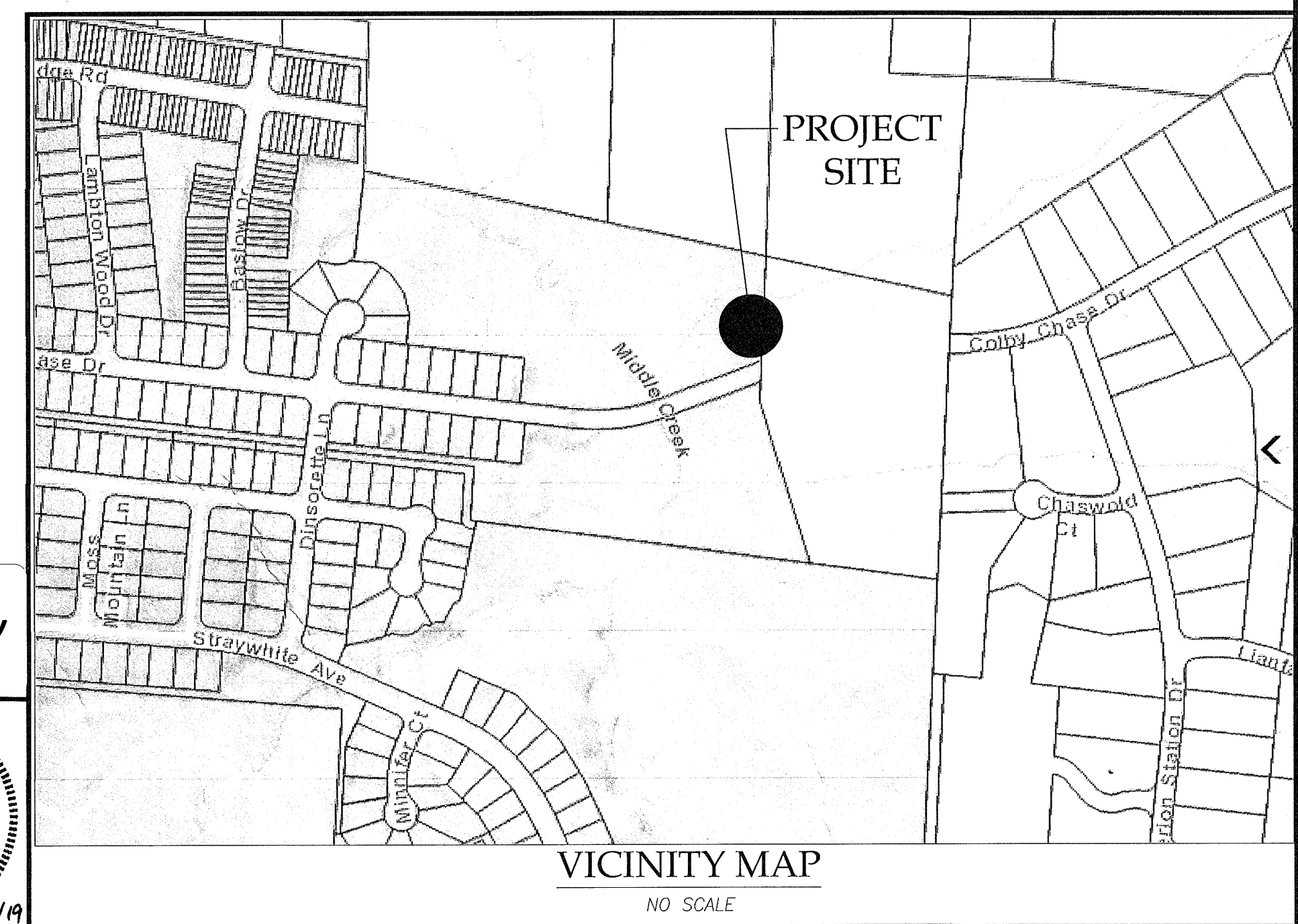
ZONING OF PROPERTY - PUD & MEDIUM DENSITY RESIDENTIAL (MINOR UTILITY IS A PERMITTED USE)  
CURRENT 2030 LAND USE MAP DESIGNATION - HIGH DENSITY & MEDIUM HIGH DENSITY RESIDENTIAL  
PROPOSED 2030 LAND USE MAP DESIGNATION - HIGH DENSITY & MEDIUM HIGH DENSITY RESIDENTIAL  
PUBLIC RECREATION - A FUTURE PUBLIC GREENWAY TRAIL IS PLANNED TO FOLLOW THE UTILITY EASEMENTS CREATED BY THIS PROJECT.  
UDO SUPPLEMENTAL STANDARD 4.4.3 UTILITIES, PARAGRAPH "G. UTILITIES, MINOR" APPLIES TO THIS PROJECT.  
UTILITY LINE EASEMENT AREA = 8.00 AC.  
UTILITY LINE EASEMENT BUILT UPON AREA = 0.00 AC.  
PUMP STATION EASEMENT AREA = 0.76 AC.  
PUMP STATION EASEMENT BUILT UPON AREA = 0.28 AC.  
PER TOA UDO 6.1.3(A) DEVELOPMENT THAT CUMULATIVELY DISTURBS < 1 AC. IS EXEMPT FROM THE REQUIREMENTS OF UDO SECTION 6.1 WATERSHED PROTECTION OVERLAY DISTRICTS"  
SITE IS LOCATED IN THE SECONDARY WATERSHED PROTECTION OVERLAY DISTRICT  
SITE CONTAINS A FEMA DESIGNATED 100 YEAR FLOODPLAIN  
SITE DOES NOT CONTAIN ANY HISTORIC STRUCTURES

#### PUBLIC INFRASTRUCTURE TABLE

WATER LINE (LF)	0
SANITARY SEWER 8" (LF)	123
SANITARY SEWER 18" (LF)	2,439
SANITARY SEWER 24" (LF)	177
FORCEMAIN 16" (LF)	8,445
Curb & Gutter (LF)	0
Storm Drain (Public) (LF)	0
Sidewalk/Greenways (LF)	0
Street (Public) (LF)	0

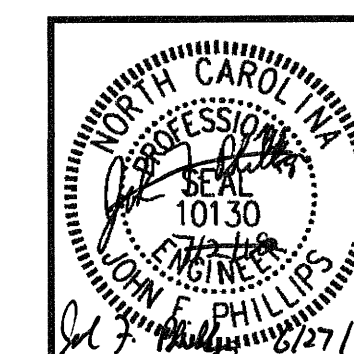
### CHECKLIST EXCLUSIONS

ITEM No.	REASON FOR EXCLUSION
3	PUBLIC RECREATION AREA IS NOT REQUIRED FOR A MINOR UTILITY
5	THERE ARE NO VARIANCES
6(a)(7)(s)	RCA NOT APPLICABLE TO A PUBLIC WORKS ONLY PROJECT



VICINITY MAP  
NO SCALE

Issued for Bid Only



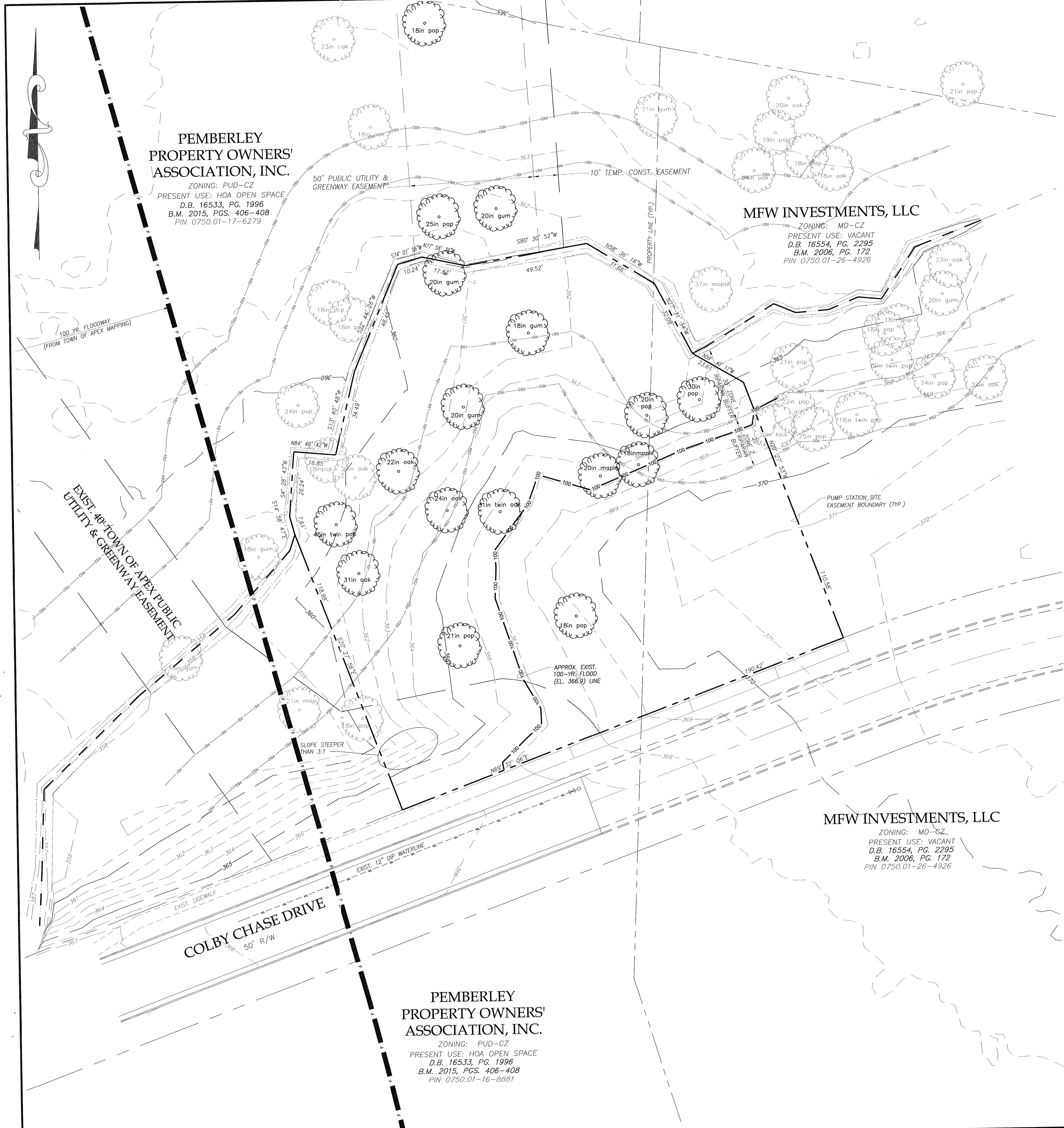
## DIEHL & PHILLIPS, P.A.

CONSULTING ENGINEERS - LIC. NO. C-0465  
1500 PINEY PLAINS RD., SUITE 200  
CARY, N.C. 27518 • (919) 467-9972

### INDEX OF DRAWINGS

MSP1	EXISTING CONDITIONS
MSP2	SITE LAYOUT PLAN
MSP3	STAGING & DEMOLITION PLAN
MSP4	GRADING PLAN
MSP5	UTILITY PLAN
MSP6	LANDSCAPE PLAN
MSP7	LIGHTING PLAN
NA	ELEVATIONS
MSP8	DETAILS





**PEMBERLEY  
PROPERTY OWNERS'  
ASSOCIATION, INC.**

ZONING: PUD-CZ  
PRESENT USE: HOA OPEN SPACE  
D.B. 16533, PG. 1996  
B.M. 2015, PGS. 406-408  
PIN 0750.01-17-6279

**MFW INVESTMENTS, LLC**

ZONING: MD-CZ  
PRESENT USE: VACANT  
D.B. 16554, PG. 2295  
B.M. 2006, PG. 172  
PIN 0750.01-26-4926

**MFW INVESTMENTS, LLC**

ZONING: MD-CZ  
PRESENT USE: VACANT  
D.B. 16554, PG. 2295  
B.M. 2006, PG. 172  
PIN 0750.01-26-4926

**PEMBERLEY  
PROPERTY OWNERS'  
ASSOCIATION, INC.**

ZONING: PUD-CZ  
PRESENT USE: HOA OPEN SPACE  
D.B. 16533, PG. 1996  
B.M. 2015, PGS. 406-408  
PIN 0750.01-16-8881

**NOTES:**

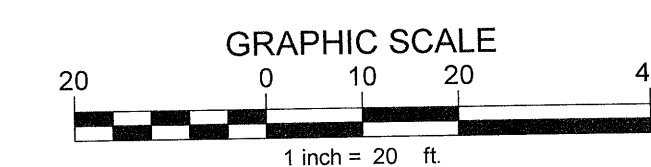
- 1) RCA not provided for this Public Works only project.
- 2) Riparian buffers on perennial streams are measured 100 feet from the top of the bank on both sides of the stream. Riparian buffers on intermittent streams are measured 50 feet from the top of the bank on both sides of the stream.
- 3) A portion of the site has 100-year Floodplain, but not 100-year Floodway. Floodplain determined by FEMA study (Map 3720075000J), revised by Withers & Ravenel letter of map revision.
- 4) No wetlands on Pump Station site (by Soil Scientist, confirmed by USACOE).
- 5) Tree survey provided by Mauldin-Watkins Surveying, P.A.
- 6) Site is in Secondary Watershed Protection Overlay District.

**CHECKLIST EXCLUSIONS**

ITEM No.	REASON FOR EXCLUSION
5	RCA NOT PROVIDED - PUBLIC WORKS ONLY PROJECT
7	NO WETLANDS PRESENT ON SITE

**LEGEND**

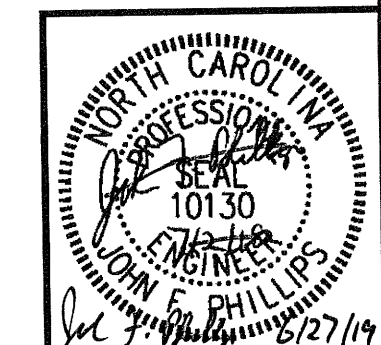
- 100 YR. FLOODWAY
- 100 YEAR FLOOD LINE
- TOP OF STREAM BANK
- R01— LIMITS OF RIPARIAN BUFFER ZONE 1
- R02— LIMITS OF RIPARIAN BUFFER ZONE 2



The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

<i>N/A</i>	Date	<i>M. S. De</i>	3/9/19
PW-Transportation	Date	WR - Stormwater	Date
<i>N/A</i>	Date	<i>Willard</i>	3/9/19
Building Inspections	Date	Planning	Date
<i>D. Smith</i>	3-15-19	<i>Carroll</i>	3/14/19
WR - Utility Engineering	Date	Planning - Transportation	Date
<i>N/A</i>	Date	<i>JA</i>	Date
Electric	Date	Fire	Date
<i>N/A</i>	Date	<i>MA</i>	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date

**Issued for Bid Only**



DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-MinorSP  
 REVISIONS:  
**DIEHL & PHILLIPS, P.A.**  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
**D&P**  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA  
 EXISTING CONDITIONS  
 SHEET: MSP1 OF 8



**PEMBERLEY  
PROPERTY OWNERS'  
ASSOCIATION, INC.**

ZONING: PUD-CZ  
PRESENT USE: HOA OPEN SPACE  
D.B. 16533, PG. 1996  
B.M. 2015, PGS. 406-408  
PIN 0750.01-17-6279

**MFW INVESTMENTS, LLC**

ZONING: MD-CZ  
PRESENT USE: VACANT  
D.B. 16554, PG. 2295  
B.M. 2006, PG. 172  
PIN 0750.01-26-4926

**PEMBERLEY  
PROPERTY OWNERS'  
ASSOCIATION, INC.**

ZONING: PUD-CZ  
PRESENT USE: HOA OPEN SPACE  
D.B. 16533, PG. 1996  
B.M. 2015, PGS. 406-408  
PIN 0750.01-16-8881

**MFW INVESTMENTS, LLC**

ZONING: MD-CZ  
PRESENT USE: VACANT  
D.B. 16554, PG. 2295  
B.M. 2006, PG. 172  
PIN 0750.01-26-4926

**NOTES:**

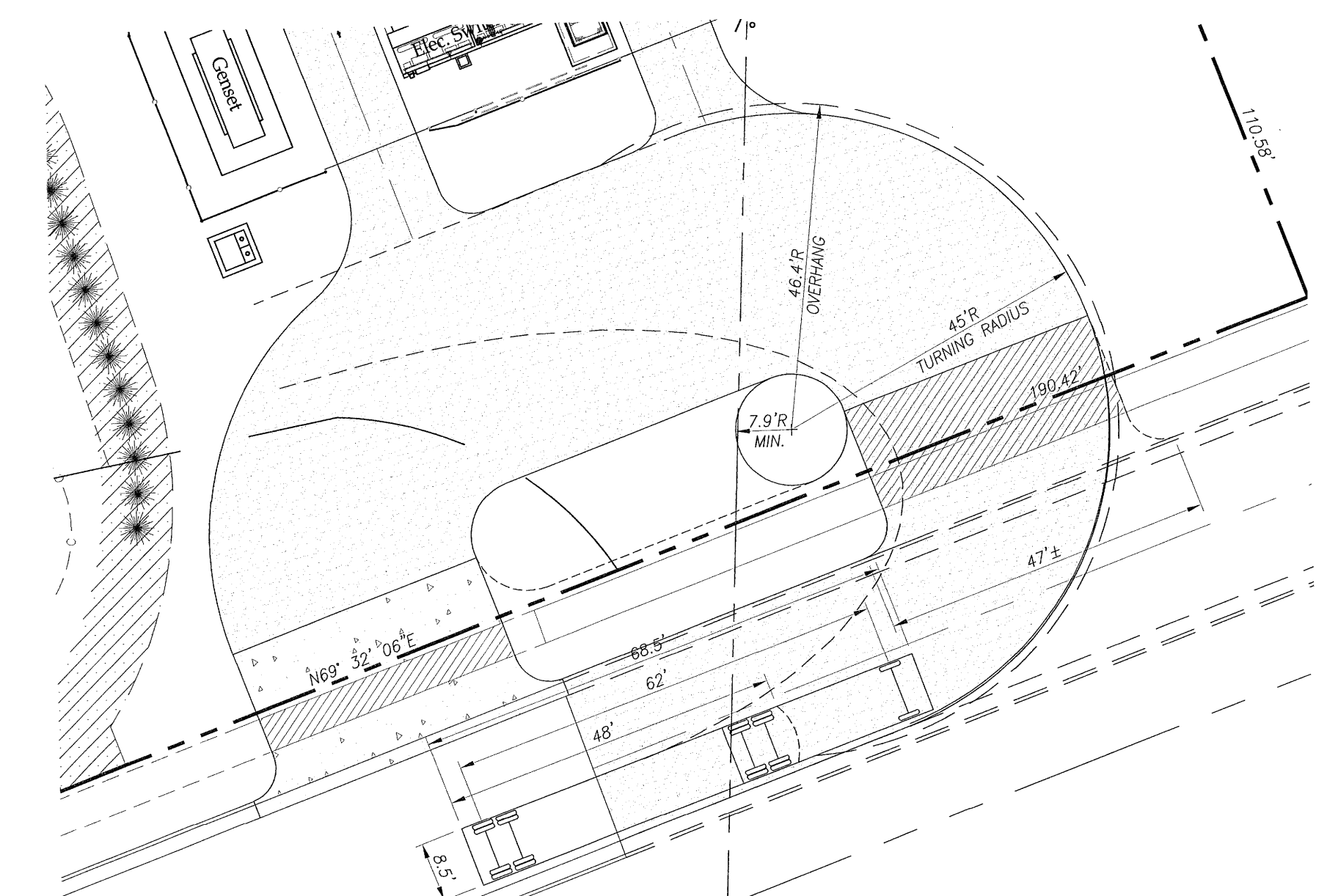
- 1) RCA not provided for this Public Works only project.
- 2) Riparian buffers on perennial streams are measured 100 feet from the top of the bank on both sides of the stream. Riparian buffers on intermittent streams are measured 50 feet from the top of the bank on both sides of the stream.
- 3) A portion of the site has 100-year Floodplain, but not 100-year Floodway. Floodplain determined by FEMA study (Map 3720075000J), revised by Withers & Ravenel letter of map revision.
- 4) No site development activity including, but not limited to, testing, clearing, installation of soil and erosion measures, or grading shall occur until required protection fencing has been installed and inspected. A protection fencing installation permit may be obtained at the Planning Department.
- 5) Protection fencing must be placed away from any saved tree one foot for each inch of caliper. Protection fencing must be placed along the outside line of the 100 year floodplain and the outside edge of any riparian buffer, except where shown otherwise. Additional protection fencing may be required in other locations close to construction activity where it is deemed necessary by the zoning enforcement officer. Such areas may include common property lines or near public areas (sidewalks, etc.).
- 6) NA
- 7) NA
- 8) NA
- 9) All required site elements shown within a particular phase must be installed before a final certificate of occupancy may be issued for any building within that phase.
- 10) Site items such as, but not limited to, lighting, landscaping (including mulch), screening (i.e. dumpsters/trash, mechanical/HVAC, etc.), site stabilization (seeding), and parking and pavement marking must be completed prior to scheduling a final site inspection.
- 11) NA
- 12) Setback dimension requirements for this facility are not specifically described in the TOA UDO, but all pump station structures must meet the following setbacks:  
Front: Greater than or equal to 68'  
Side: Greater than or equal to 45'  
Rear: Greater than or equal to 55'

**CHECKLIST EXCLUSIONS**

ITEM No.	REASON FOR EXCLUSION
4	NO RETAINING WALLS ARE INCLUDED IN THIS PROJECT
9	NO STREETS ARE INCLUDED IN THIS PROJECT
10	NO STREETS ARE INCLUDED IN THIS PROJECT
11	NO STREETS ARE INCLUDED IN THIS PROJECT
12	NO PARKING AREAS ARE INCLUDED IN THIS PROJECT
15	NO FIRE LANE PROVIDED. FIRE TRUCK CAN UTILIZE CIRCULAR DRIVE
19	NO ACCESSORY STRUCTURES OR SITE AMENITIES INCLUDED IN THIS PROJECT
20	NO OUTSIDE STORAGE YARDS, DISPLAY OR SALES AREAS ARE INCLUDED IN THIS PROJECT
23	RCA NOT PROVIDED FOR THIS PUBLIC WORKS PROJECT
25	NO GROUND SIGN IS INCLUDED IN THIS PROJECT
26	NOT A PUBLIC PROJECT - DOES NOT CONFORM TO ADA REQUIREMENTS

**FENCE SCREENING FABRIC NOTE**

CONTRACTOR SHALL INSTALL A UV RESISTANT TIGHT KNIT WOVEN POLYPROPYLENE CLOSED MESH PRIVACY FENCE SCREEN ON THE EXTERIOR SIDE OF THE CHAIN LINK FENCE AND GATE FABRIC. THE SCREEN SHALL HAVE 2" SPACING BETWEEN SCREEN PANELS. THE POLYPROPYLENE WEBBING FOR EDGE REINFORCEMENT AND BRASS GROMMETS SPACED AT 24 INCHES MAXIMUM. THE POLYPROPYLENE WEBBING FOR EDGE REINFORCEMENT AND BRASS GROMMETS SPACED AT 24 INCHES MAXIMUM. THE SCREEN SHALL HAVE SCREEN PANELS SHALL BE SECURED TO THE FENCE FABRIC WITH UV RESISTANT SCREEN TIES. SCREEN SHALL HAVE A 5 YEAR WARRANTY, AND SHALL BE 750 SERIES AS MANUFACTURED BY FENCESCREEN, INC., OR APPROVED EQUAL.



**TRUCK TURNAROUND**

SCALE: 1" = 20'

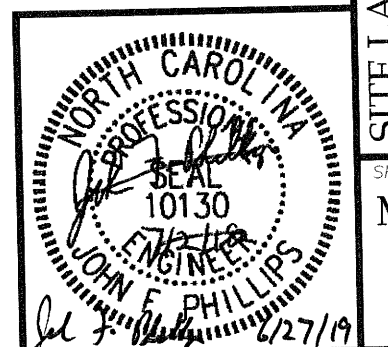
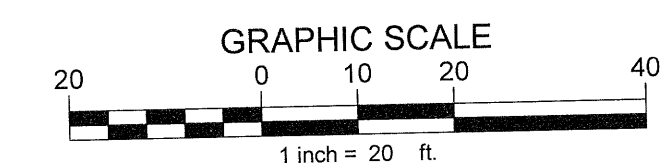
**LEGEND**

- LIMITS OF 100 YEAR FLOODWAY
- 100 YEAR FLOOD LINE
- TOP OF STREAM BANK
- LIMITS OF RIPARIAN BUFFER ZONE 1
- LIMITS OF RIPARIAN BUFFER ZONE 2
- TREE PROTECTION FENCE
- TREE PROTECTION/SILT FENCE
- SILT FENCE
- GRAVEL ACCESS DRIVE
- 10' WIDE PLANTED AREA

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

	3/29/19	N/A	
PW-Transportation	Date	WR - Stormwater	Date
	3/14/19	Phillips	3/19/19
Building Inspections	Date	Planning	Date
	3-15-19	Sam M. Rebeck	3/14/19
WR - Utility Engineering	Date	Planning - Transportation	Date
N/A	Date	Electric	3/21/19
N/A	Date	Fire	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date

**Issued for Bid Only**



**DIEHL & PHILLIPS, P.A.**  
CONSULTING ENGINEERS - LIC. NO. C-0465  
1500 PINEY PLAINS RD., SUITE 200  
CARY, N.C. 27518 • (919) 467-9972

**D&P**

MIDDLE CREEK REGIONAL  
PUMP STATION, FORCE MAIN, & INTERCEPTOR  
MFW INVESTMENTS, LLC  
APEX, NORTH CAROLINA

SITE LAYOUT

MSP2  
OF  
8

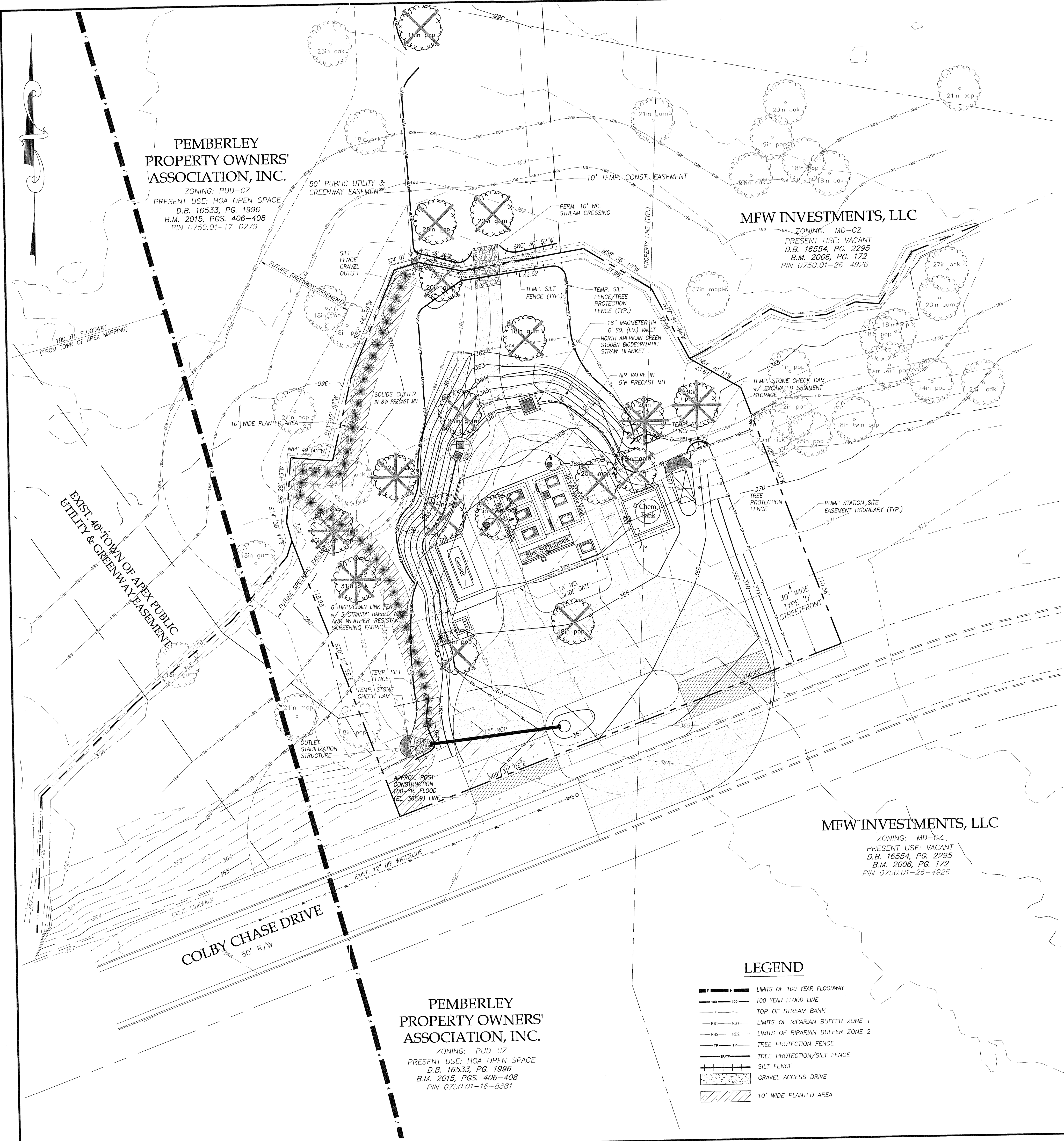






**NOTES:**

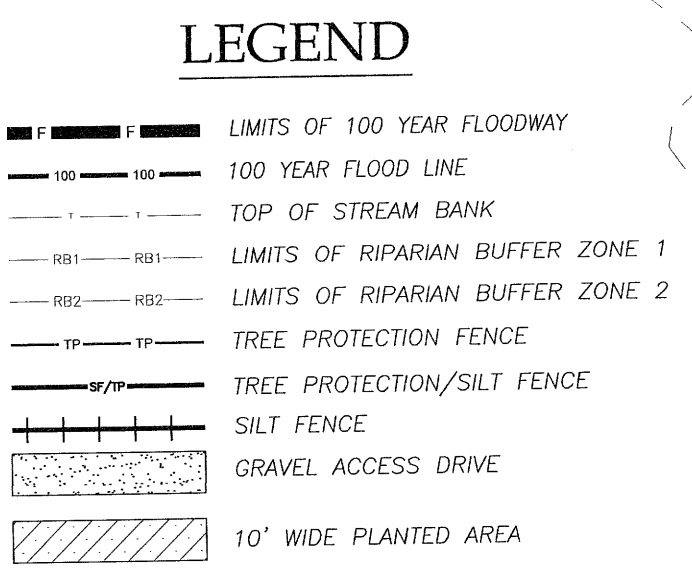
- 1) RCA not provided for this Public Works only project.
- 2) Riparian buffers on perennial streams are measured 100 feet from the top of the bank on both sides of the stream. Riparian buffers on intermittent streams are measured 50 feet from the top of the bank on both sides of the stream.
- 3) A portion of the site has 100-year Floodplain, but not 100-year Floodway. Floodplain determined by FEMA study (Map 3720075000J), revised by Withers & Ravenel letter of map revision.
- 4) No site development activity including, but not limited to, testing, clearing, installation of soil and erosion measures, or grading shall occur until required protection fencing has been installed and inspected. A protection fencing installation permit may be obtained at the Planning Department.
- 5) Protection fencing must be placed away from any saved tree one foot for each inch of caliper. Protection fencing must be placed along the outside line of the 100 year floodplain and the outside edge of any riparian buffer, except where shown otherwise. Additional protection fencing may be required in other locations close to construction activity where it is deemed necessary by the zoning enforcement officer. Such areas may include common property lines or near public areas (sidewalks, etc.).
- 6) NA
- 7) NA
- 8) NA
- 9) NA
- 10) NA
- 11) NA
- 12) NA
- 13) NA
- 14) Site is in Secondary Watershed Protection Overlay District.
- 15) NA
- 16) Project requires a limited amount of grading in Zone 2 of the stream buffer. Buffer will be re-vegetated, except in the area of the town mandated utility easement access driveway.



CHECKLIST EXCLUSIONS	
ITEM No.	REASON FOR EXCLUSION
12	NO RETAINING WALLS ARE INCLUDED IN THIS PROJECT
13	NO RETAINING WALLS ARE INCLUDED IN THIS PROJECT
14	NOT A PUBLIC PROJECT - DOES NOT CONFORM TO ADA REQUIREMENTS
15	NOT A PUBLIC PROJECT - DOES NOT CONFORM TO ADA REQUIREMENTS
16	NO RETAINING WALLS ARE INCLUDED IN THIS PROJECT
17	NO RECREATIONAL REQUIREMENTS FOR THIS PROJECT
19	ALL STORM DRAINAGE CULVERTS ARE ONSITE - NO EASEMENTS ARE NECESSARY

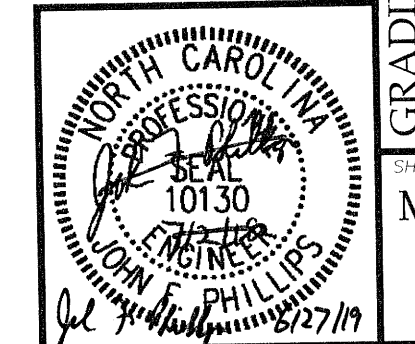
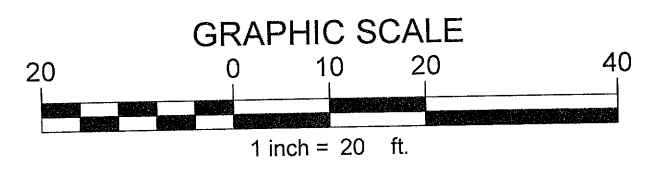
**MFW INVESTMENTS, LLC**  
 ZONING: MD-SZ  
 PRESENT USE: VACANT  
 D.B. 16554, PG. 2295  
 B.M. 2006, PG. 172  
 PIN 0750.01-26-4926

**PEMBERLEY PROPERTY OWNERS' ASSOCIATION, INC.**  
 ZONING: PUD-CZ  
 PRESENT USE: HOA OPEN SPACE  
 D.B. 16533, PG. 1996  
 B.M. 2015, PGS. 406-408  
 PIN 0750.01-16-8881

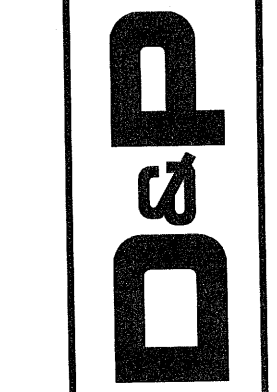


The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

 PW-Transportation Date: 3/19/19	 WR - Stormwater Date: 3/19/19
 Building Inspections Date: 3/15/19	 Planning - Transportation Date:
 WR - Utility Engineering Date: N/A	 Fire Date:
 WR - S & E Date:	 Parks, Recreation & Cultural Res. Date:



**DIEHL & PHILLIPS, P.A.**  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972



MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA

GRADING PLAN  
 SHEET MSP4 OF 8



**NOTES:**

- 1) RCA not provided for this Public Works only project.
- 2) Riparian buffers on perennial streams are measured 100 feet from the top of the bank on both sides of the stream. Riparian buffers on intermittent streams are measured 50 feet from the top of the bank on both sides of the stream.
- 3) A portion of the site has 100-year Floodplain, but not 100-year Floodway. Floodplain determined by FEMA study (Map 3720075000J), revised by Withers & Ravenel letter of map revision.
- 4) No site development activity including, but not limited to, testing, clearing, installation of soil and erosion measures, or permit may be obtained at the Planning Department.
- 5) Protection fencing must be placed away from any saved tree one foot for each inch of caliper. Protection fencing installation grading shall occur until required protection fencing has been installed and inspected. A protection fencing installation permit may be obtained at the Planning Department.
- 6) NA
- 7) NA
- 8) NA
- 9) NA
- 10) NA
- 11) NA
- 12) NA
- 13) NA
- 14) All water and sewer lines shall be installed with a minimum of 3 feet of cover.
- 15) Maintain 18" minimum vertical separation between utilities.
- 16) Verify all illustrated utility crossings prior to construction and notify the engineer if conflicts are encountered.
- 17) Contractor shall coordinate utility relocation or abandonment with local utility companies as required.
- 18) Water and sewer shall be at least 10 feet laterally from existing or proposed sewers. Where local conditions prevent a separation of at least 10 feet, the water main may be laid closer, provided that the elevation of the bottom of the water main is at least 18" above the top of the sewer with a horizontal separation of at least 3 feet.
- 19) All new public water and sewer lines contained within a Town of Apex Public Utility Easement will require a Water Distribution Extension Permit and/or a Gravity Sewer Extension Permit prior to the start of utility construction. All Water Distribution Extension Permit Applications shall be accompanied by a Sealed Engineer's Report per the TOA Water Sewer System Management Plan.
- 20) A plumbing permit issued by the Building Inspection Division is required for all plumbing systems, including storm drainage systems, installed outside the Public Right-of-Way or a Public Utility Easement. These systems shall be inspected and approved by the plumbing inspector prior to covering. Contact Rudy Boker (919-249-3381) for information including the utilization of a third-party inspection agency.
- 21) It is the responsibility of the owner or his representative(s) to locate and identify all existing and proposed utilities and to clearly identify them on the approved plans.
- 22) No private utility easements shall be allowed to be counted in the calculations for buffers, RCA, or required landscape areas.
- 23) Site will require water (2" water service) and electrical (750 amp, 480Y/277V, 3Ø, 4W) service.
- 24) A future Public Greenway Trail is planned to follow the utility easements created by this project.

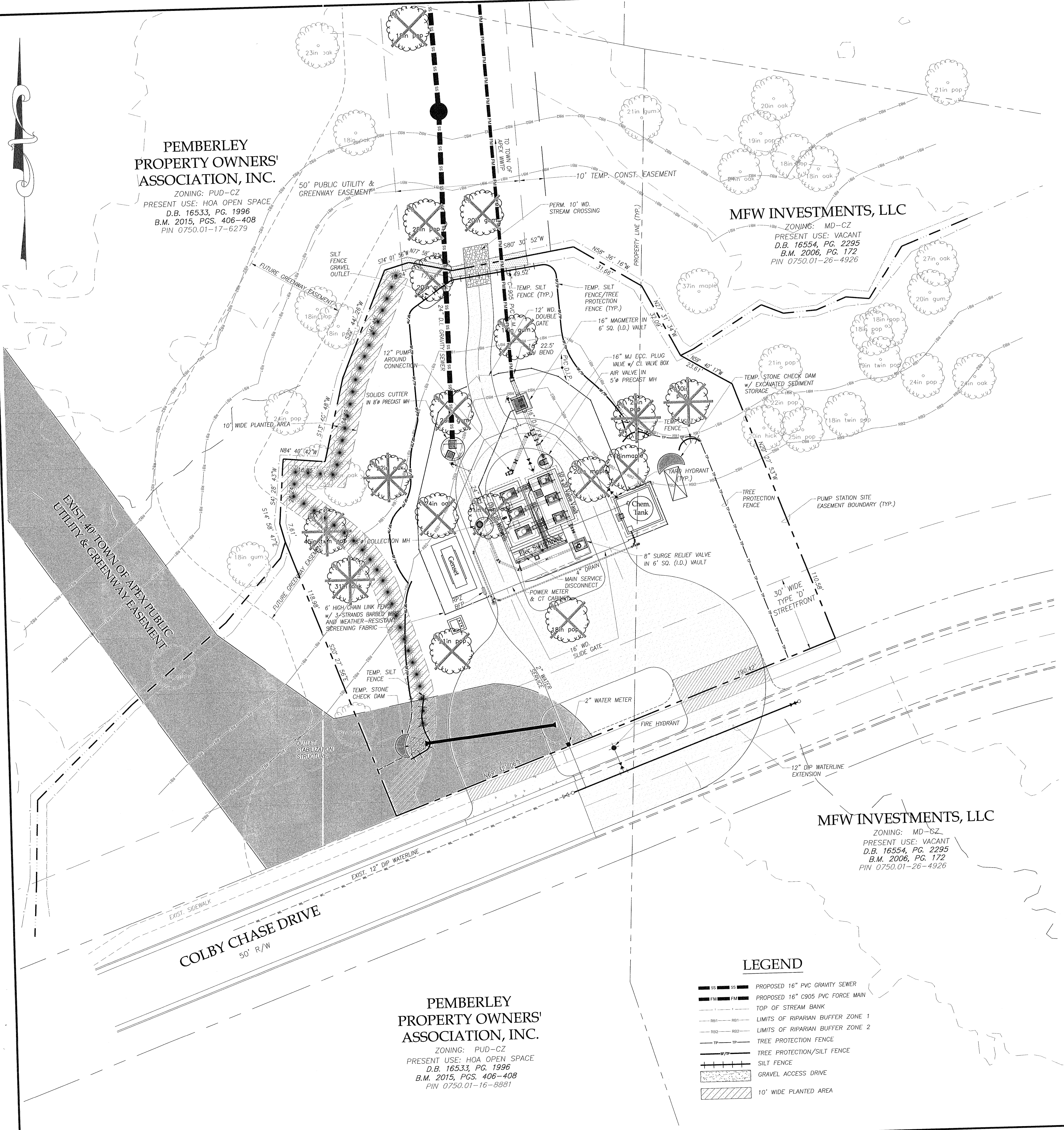
REVISIONS

**DIEHL & PHILLIPS, P.A.**  
 CONSULTING ENGINEERS - LIC. NO. C-0405  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972

**D&P**

MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA

UTILITY PLAN  
 SHEET  
 MSP5  
 OF  
 8

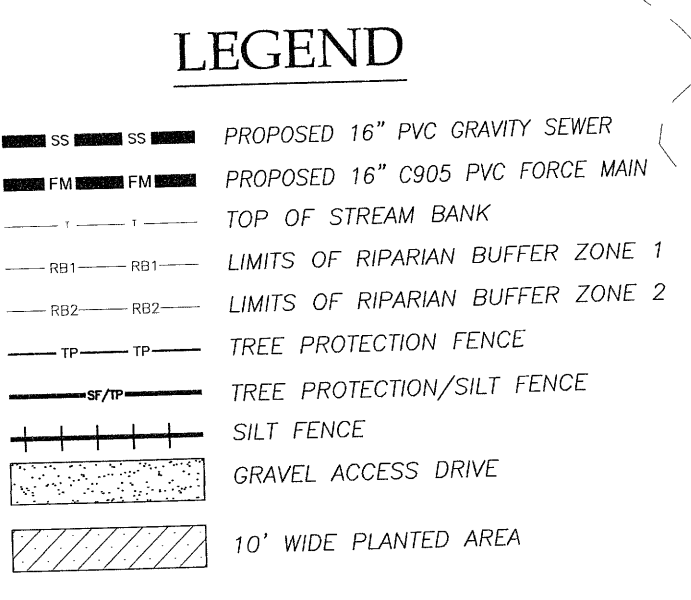


**PEMBERLEY  
 PROPERTY OWNERS'  
 ASSOCIATION, INC.**  
 ZONING: PUD-CZ  
 PRESENT USE: HOA OPEN SPACE  
 D.B. 16533, PG. 1996  
 B.M. 2015, PGS. 406-408  
 PIN 0750.01-17-6279

**MFW INVESTMENTS, LLC**  
 ZONING: MD-CZ  
 PRESENT USE: VACANT  
 D.B. 16554, PG. 2295  
 B.M. 2006, PG. 172  
 PIN 0750.01-26-4926

**MFW INVESTMENTS, LLC**  
 ZONING: MD-CZ  
 PRESENT USE: VACANT  
 D.B. 16554, PG. 2295  
 B.M. 2006, PG. 172  
 PIN 0750.01-26-4926

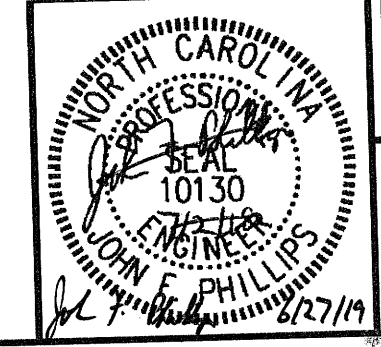
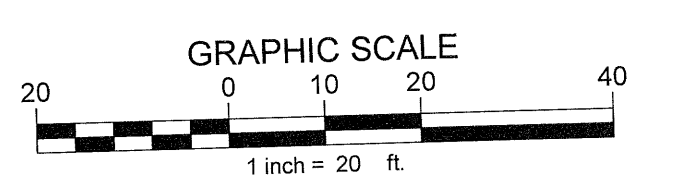
**PEMBERLEY  
 PROPERTY OWNERS'  
 ASSOCIATION, INC.**  
 ZONING: PUD-CZ  
 PRESENT USE: HOA OPEN SPACE  
 D.B. 16533, PG. 1996  
 B.M. 2015, PGS. 406-408  
 PIN 0750.01-16-8881



CHECKLIST EXCLUSIONS	
ITEM No.	REASON FOR EXCLUSION
7	PROJECT SITE WILL BE OWNED BY THE TOWN OF APEX - NO EASEMENTS WILL BE NECESSARY
10	NO BUILDINGS ON THIS PROJECT
14	NO FIRE LANE PROVIDED
15	NO BUILDINGS ON THIS PROJECT
16	NO BUILDINGS ON THIS PROJECT
18	RCA NOT PROVIDED - PUBLIC WORKS ONLY PROJECT

The signatures attested below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

NA	Date	WR - Stormwater	Date
NA	Date	WR - Sewer	Date
NA	Date	WR - Planning	Date
NA	Date	WR - Utility Engineering	Date
NA	Date	WR - Fire	Date
NA	Date	WR - Parks, Recreation & Cultural Res.	Date





NOTES:

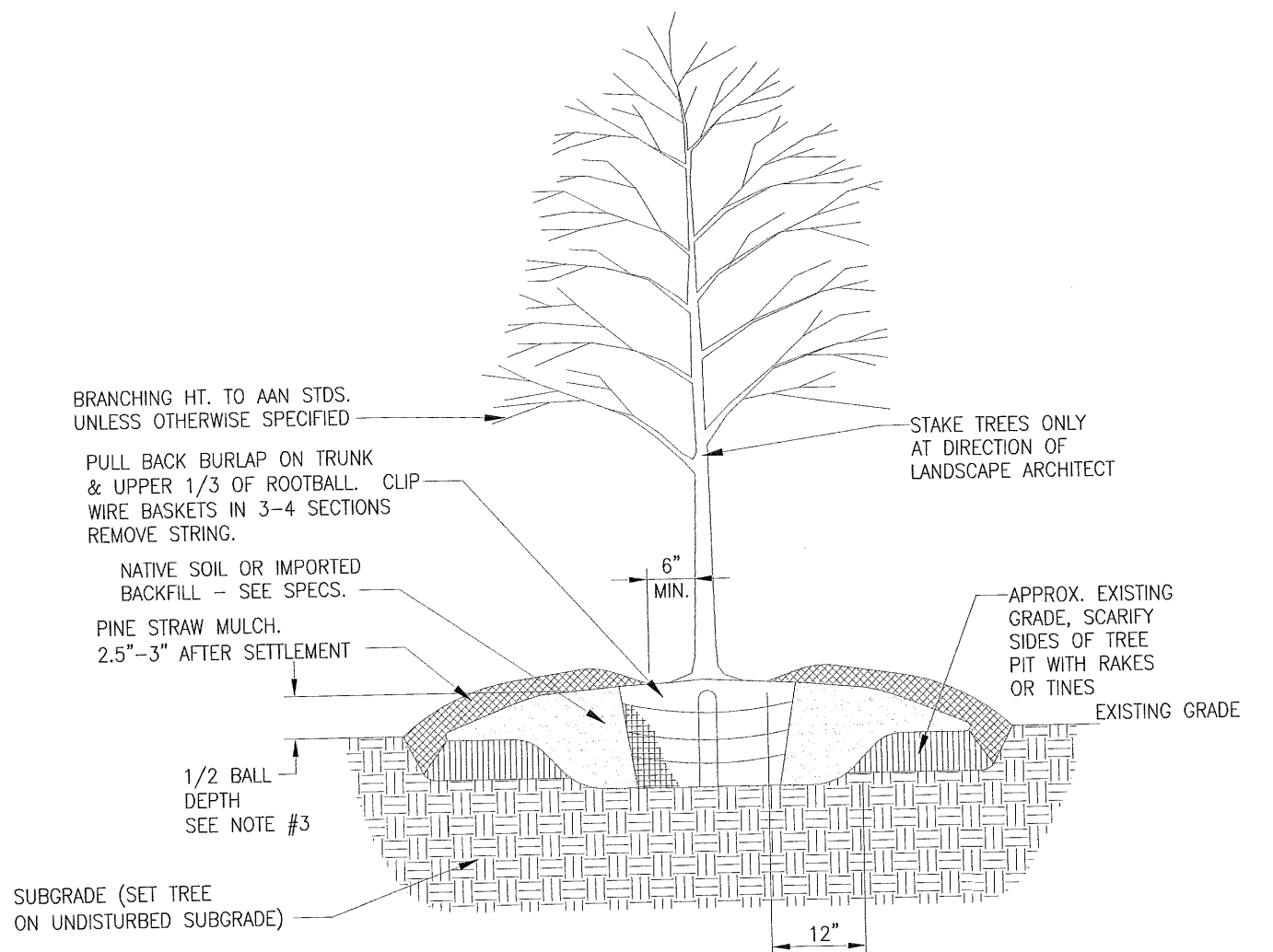
- 1) NA
- 2) NA
- 3) NA
- 4) NA
- 5) NA
- 6) NA
- 7) NA
- 8) NA
- 9) NA
- 10) NA
- 11) NA
- 12) NA
- 13) NA
- 14) NA
- 15) NA
- 16) NA
- 17) NA
- 18) NA
- 19) NA
- 20) NA
- 21) NA
- 22) NA
- 23) All landscaping is required to be installed prior to a certificate of occupancy for the project. If the applicant chooses to delay the installation of landscaping from April 1 through September 1, then the applicant shall provide a cash bond equal to 150 percent of the cost of materials and installation, based on the highest estimate received, to ensure installation of the required landscaping.
- 24) NA
- 25) Any vegetation that is dead, substandard, unhealthy, of poor structural quality, or missing shall be replaced in conformance with Town standards.
- 26) All plant material shall be allowed to reach their mature size and maintained at their mature size. Plants shall not be cut or severely pruned so that their natural form is impaired.
- 27) All slopes of 2:1 or steeper shall be stabilized with permanent slope retention or a suitable combination of plantings and retention devices.
- 28) Slopes steeper than 3:1 shall not be stabilized turf grasses, but with other permanent groundcover.
- 29) All outdoor light fixtures shall be located a minimum of 10 feet from a property or right-of-way line, and at least two feet away from any required perimeter or streetscape buffer and tree save area.

CHECKLIST EXCLUSIONS	
ITEM No.	REASON FOR EXCLUSION
6	NO STREETS ARE INCLUDED ON THIS PROJECT
8	NO BUILDINGS ARE INCLUDED ON THIS PROJECT

PLANT LIST							
TREES	COMMON NAME	QTY	CAL.	HT.	SPREAD	ROOT	REMARKS
QUERCUS BICOLOR	SWAMP WHITE OAK	2	2.5"	12'		BB	
QUERCUS SHUMARDII	SHUMARD OAK	2	2.5"	12'		BB	
SHRUBS							
VIBURNUM PRUNIFOLIUM	BLACKHAWK VIBURNUM	5		5'			CONT.
PRUNUS CAROLINIANA	BRIGHT N TIGHT	54		5'			CONT.
ORNAMENTAL GRASS GROUNDCOVER							
CHASMANTHIUM LATIFOLIUM	RIVER OATS	28			1-2.5'	3 GAL CONT.	
PENNISETUM ORIENTALE	ORIENTAL FOUNTAIN GRASS	21			2-3'	3 GAL CONT.	
RHUS AROMATIC 'GRO-LOW'	FRAGRANT SUMAC	-			3-6'	1 GAL CONT.	
CEPHELANTHUS OCCIDENTALIS	COMMON BUTTONBUSH	-			3-6'	1 GAL CONT.	

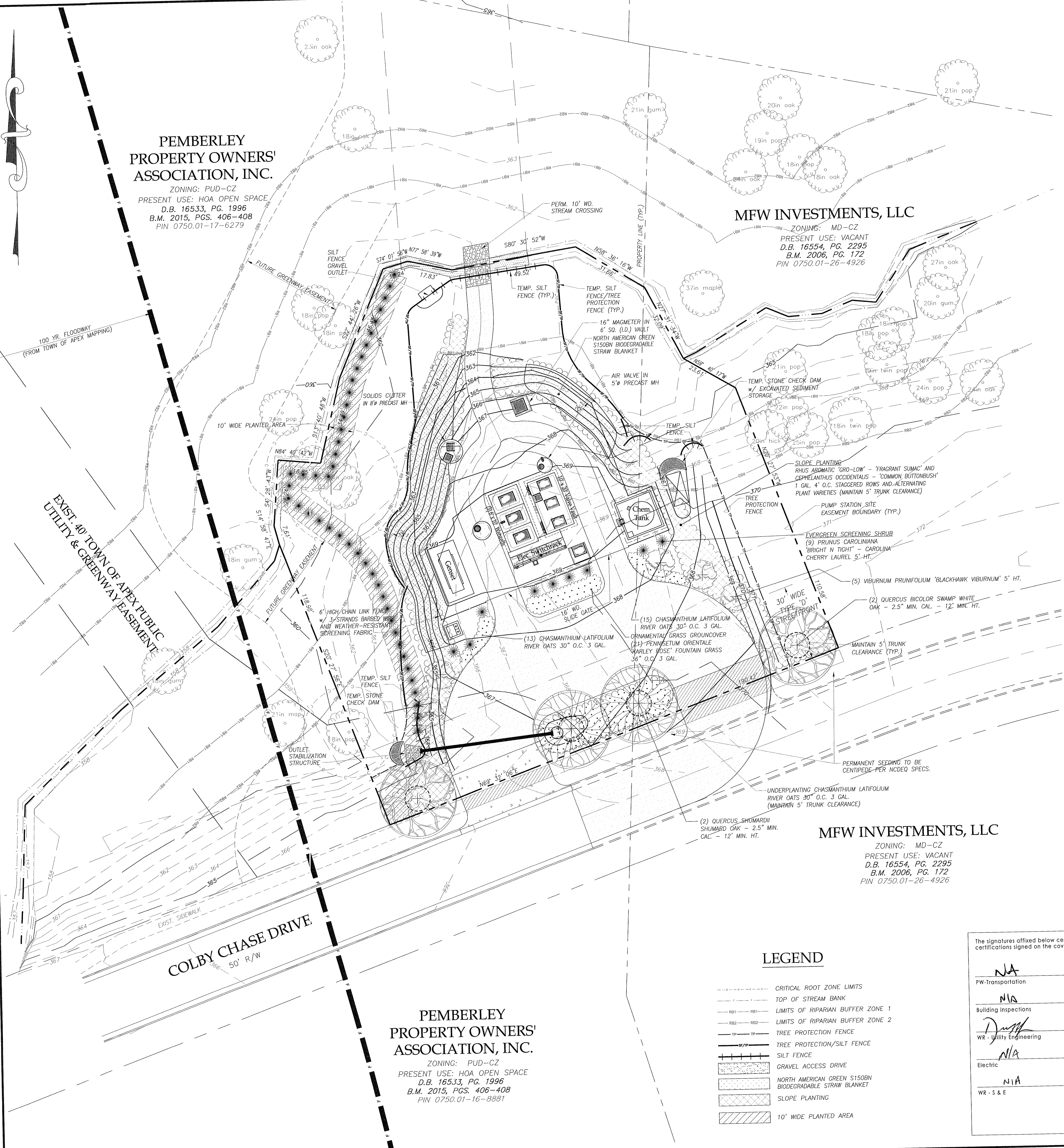
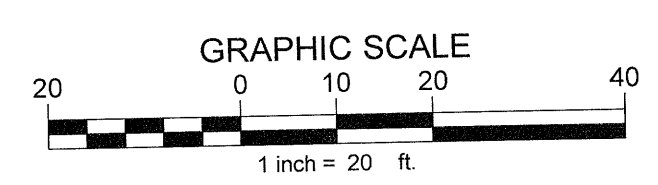
STREETFRONT BUFFER CALCULATION

30' TYPE 'D' STREETFRONT BUFFER  
 5,713 SF TOTAL AREA - 2,932 UNVEGETATED (TRUCK TURN AROUND) = 2,781 SF VEGETATED  
 2,781 SF x 1 LARGE TREE PER 1,000 SF = 3 REQUIRED (4 LARGE TREES PROVIDED)



- NOTES:
1. For container-grown trees, use fingers or small hand tools to pull the roots out of the outer layer of potting soil, then cut or pull apart any roots circling the perimeter of the container.
  2. After digging hole, fill with water to confirm that water drains out of the soil. If hole does not perc, do not plant tree.
  3. Thoroughly soak the tree root ball and adjacent prepared soil immediately after planting.
  4. The planting process is similar for deciduous and evergreen trees.

TREE PLANTING DETAIL  
 NOT TO SCALE



MFW INVESTMENTS, LLC  
 ZONING: MD-CZ  
 PRESENT USE: VACANT  
 D.B. 16554, PG. 2295  
 B.M. 2006, PG. 172  
 PIN 0750.01-26-4926

PEMBERLEY  
 PROPERTY OWNERS'  
 ASSOCIATION, INC.  
 ZONING: PUD-CZ  
 PRESENT USE: HOA OPEN SPACE  
 D.B. 16533, PG. 1996  
 B.M. 2015, PGS. 406-408  
 PIN 0750.01-17-6279

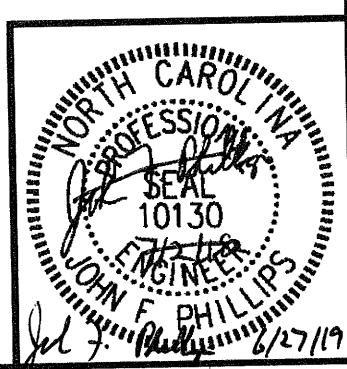
PEMBERLEY  
 PROPERTY OWNERS'  
 ASSOCIATION, INC.  
 ZONING: PUD-CZ  
 PRESENT USE: HOA OPEN SPACE  
 D.B. 16533, PG. 1996  
 B.M. 2015, PGS. 406-408  
 PIN 0750.01-16-8881

LEGEND

- CRITICAL ROOT ZONE LIMITS
- TOP OF STREAM BANK
- LIMITS OF RIPARIAN BUFFER ZONE 1
- LIMITS OF RIPARIAN BUFFER ZONE 2
- TREE PROTECTION FENCE
- TREE PROTECTION/SILT FENCE
- SILT FENCE
- GRAVEL ACCESS DRIVE
- NORTH AMERICAN GREEN S150BN BIODEGRADABLE STRAW BLANKET
- SLOPE PLANTING
- 10' WIDE PLANTED AREA

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

NA PW-Transportation	Date	NA WR - Stormwater	Date
NA Building Inspections	Date	NA Planning	3/19/19 Date
NA WR - Utility Engineering	3-15-19 Date	NA Planning - Transportation	4/14/19 Date
NA Electric	Date	NA Fire	Date
NA WR - S & E	Date	NA Parks, Recreation & Cultural Res.	Date



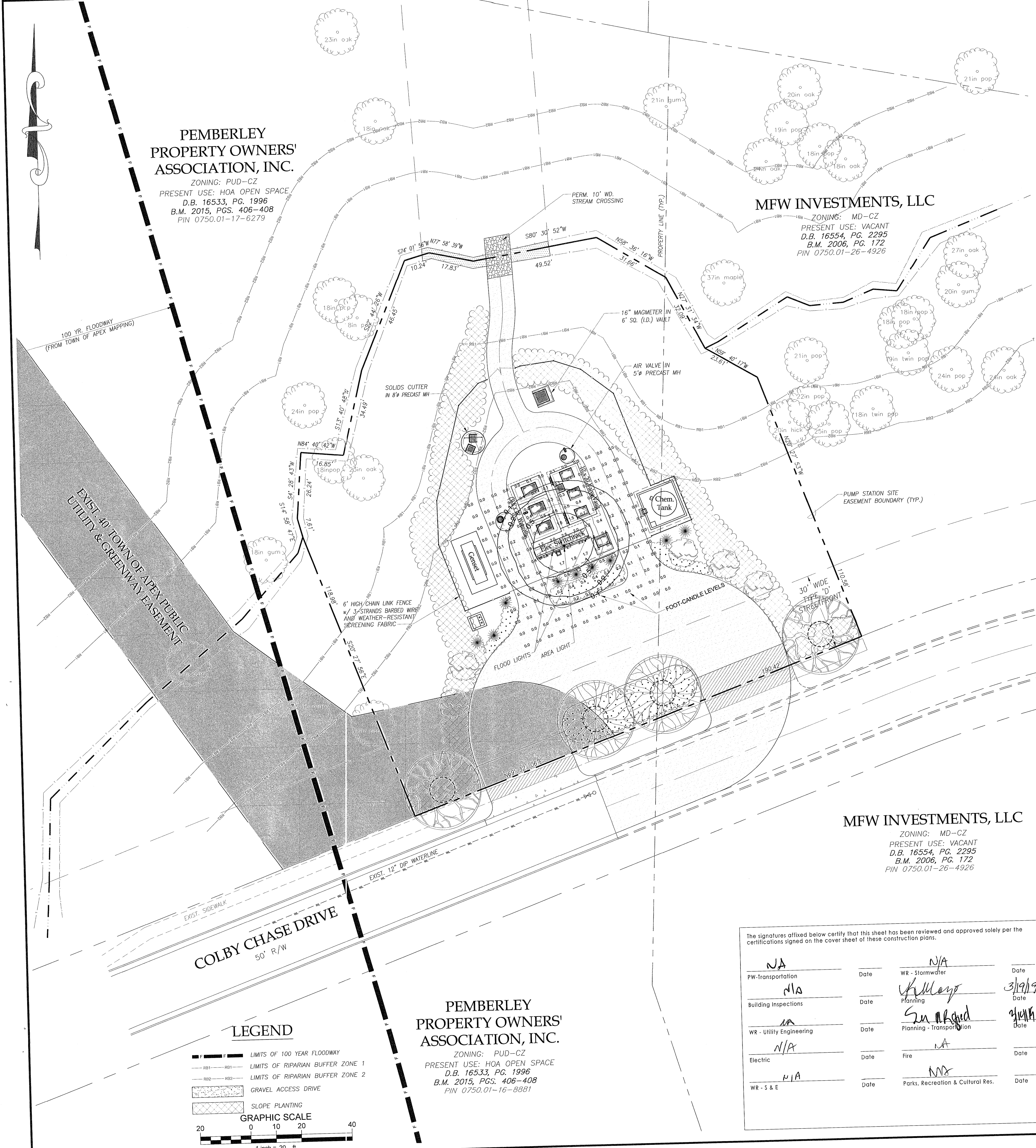


**PEMBERLEY  
PROPERTY OWNERS'  
ASSOCIATION, INC.**

ZONING: PUD-CZ  
PRESENT USE: HOA OPEN SPACE  
D.B. 16533, PG. 1996  
B.M. 2015, PGS. 406-408  
PIN 0750.01-17-6279

**MFW INVESTMENTS, LLC**

ZONING: MD-CZ  
PRESENT USE: VACANT  
D.B. 16554, PG. 2295  
B.M. 2006, PG. 172  
PIN 0750.01-26-4926



**NOTES:**

- 1) NA
- 2) NA
- 3) NA
- 4) NA
- 5) NA
- 6) NA
- 7) NA
- 8) NA
- 9) NA
- 10) NA
- 11) NA
- 12) NA
- 13) NA
- 14) NA
- 15) NA
- 16) NA
- 17) NA
- 18) NA
- 19) NA
- 20) NA
- 21) NA
- 22) NA
- 23) NA
- 24) NA
- 25) NA
- 26) NA
- 27) NA
- 28) NA
- 29) All outdoor light fixtures shall be located a minimum of 10 feet from a property or right-of-way line, and at least two feet away from any required perimeter or streetscape buffer and tree save area.
- 30) Lamps for non-cutoff light fixtures shall not exceed 100 watts.
- 31) NA
- 32) Floodlights or other types of lighting are prohibited unless approval is given through the development review process and reflected on the approved site plan.
- 33) NA
- 34) NA
- 35) Area Light - Photocell operated Lithonia CAT. No. TDD LED-P1-40K-120-PE-DNA-M4 with optional mounting arm. Mounting height - 15' on Electrical Rack support columns. Photocell activated. No light leaves pump station site. Mounting height - 15' on Electrical Rack support columns. Photocell clear glass lens, hinged door frame, and light shielding visor - Lithonia Cat. No. OFL 300/500Q. Mounting Height - 15' on Electrical Rack support columns. Floodlights will only be used in the event of night time emergency maintenance. These lights will only be used in the event of night time emergency maintenance.
- 36) Site has two floodlights - Quartz halogen floodlight, with bronze finish, tempered clear glass lens, hinged door frame, and light shielding visor - Lithonia Cat. No. OFL 300/500Q. Mounting Height - 15' on Electrical Rack support columns. Floodlights will only be used in the event of night time emergency maintenance.
- 37) Site has four "Fluorescent Style" LED fixtures under the canopy protecting the Electrical Panels. These lights will only be used in the event of night time emergency maintenance.
- 38) The foot-candle levels shown on this pump station site drawing are initial light levels, no depreciation. (Light loss factor of 1.0)

**CHECKLIST EXCLUSIONS**

ITEM NO.	REASON FOR EXCLUSION
12	NO ADJACENT EXISTING RESIDENTIAL PROPERTIES
13	NA

**TDD LED LED Area Luminaire**

**Specifications**

Width: 36" H  
Height: 12" D  
Depth: 12" W  
Backplate: 24" H  
Height: 24" H

**Introduction**

The TDD LED Luminaire is now available with long-lasting, energy-efficient LED technology. Featuring a classic design, the TDD LED offers a look similar to a traditional appearance and is powered by advanced LEDs.

**Area/Security Light for Middle Creek Pump Station**

Example: TDD LED P1-40K-120-PE-DNA-M4

**Accessories**

**Features & Specifications**

**Area/Security Light for Middle Creek Pump Station**

Example: TDD LED P1-40K-120-PE-DNA-M4

**LITHONIA LIGHTING**

**Outdoor General Purpose Floodlight Light Visor**

**Features & Specifications**

**Introduction**

The Floodlight Light Visor is a photocell operated floodlight with a clear glass lens, hinged door frame, and light shielding visor. It is designed for use in the event of night time emergency maintenance.

**Dimensions**

**Ordering Information**

Example: OFL 300/500Q 120 15 12

**LITHONIA LIGHTING**

**VAP LED**

**Features & Specifications**

**Introduction**

The VAP LED is a photocell operated floodlight with a clear glass lens, hinged door frame, and light shielding visor. It is designed for use in the event of night time emergency maintenance.

**Dimensions**

**Ordering Information**

Example: VAP LED P1-40K-120-PE-DNA-M4

**VAP Linear Rough Service LED**

**Features & Specifications**

**Introduction**

The VAP Linear Rough Service LED is a photocell operated floodlight with a clear glass lens, hinged door frame, and light shielding visor. It is designed for use in the event of night time emergency maintenance.

**Dimensions**

**Ordering Information**

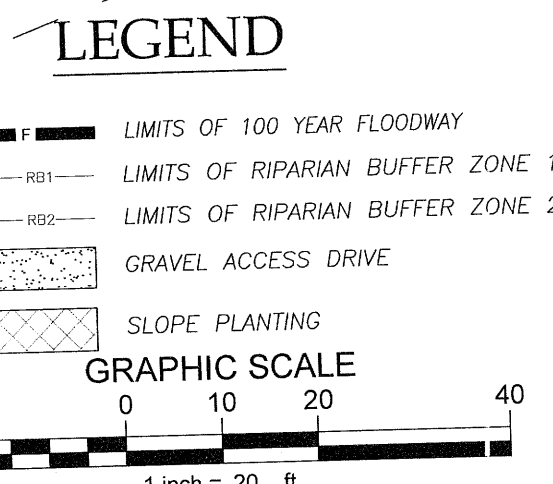
Example: VAP LED P1-40K-120-PE-DNA-M4

**MFW INVESTMENTS, LLC**

ZONING: MD-CZ  
PRESENT USE: VACANT  
D.B. 16554, PG. 2295  
B.M. 2006, PG. 172  
PIN 0750.01-26-4926

The signatures affixed below certify that this sheet has been reviewed and approved solely by the certifications signed on the cover sheet of these construction plans.

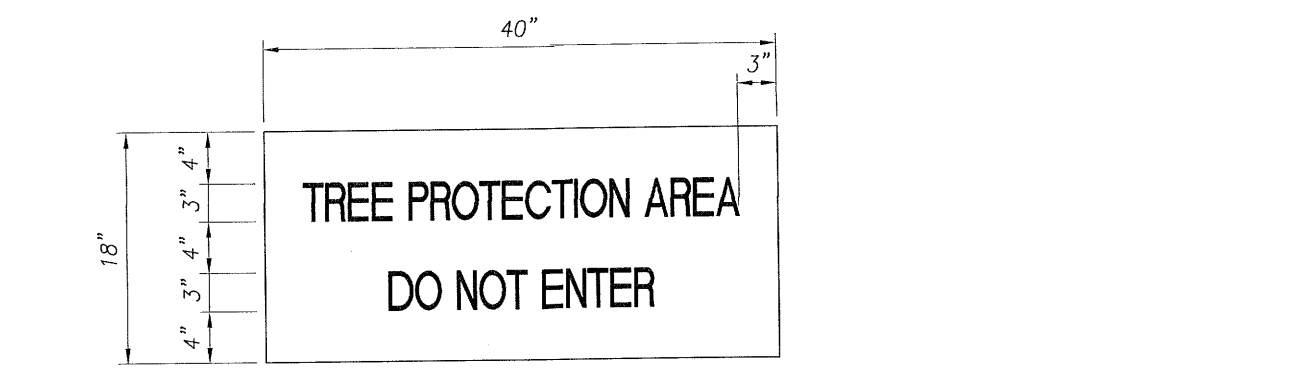
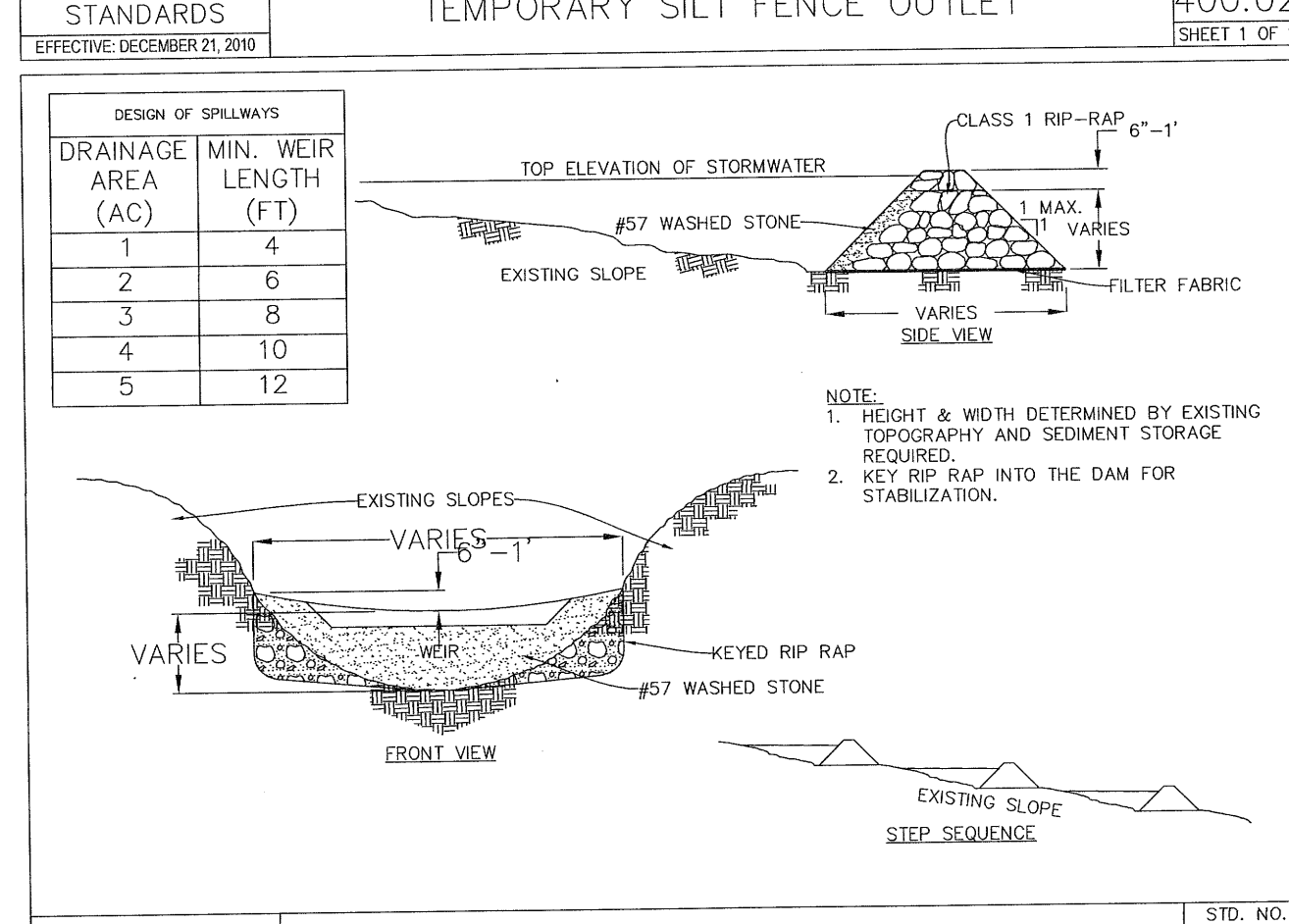
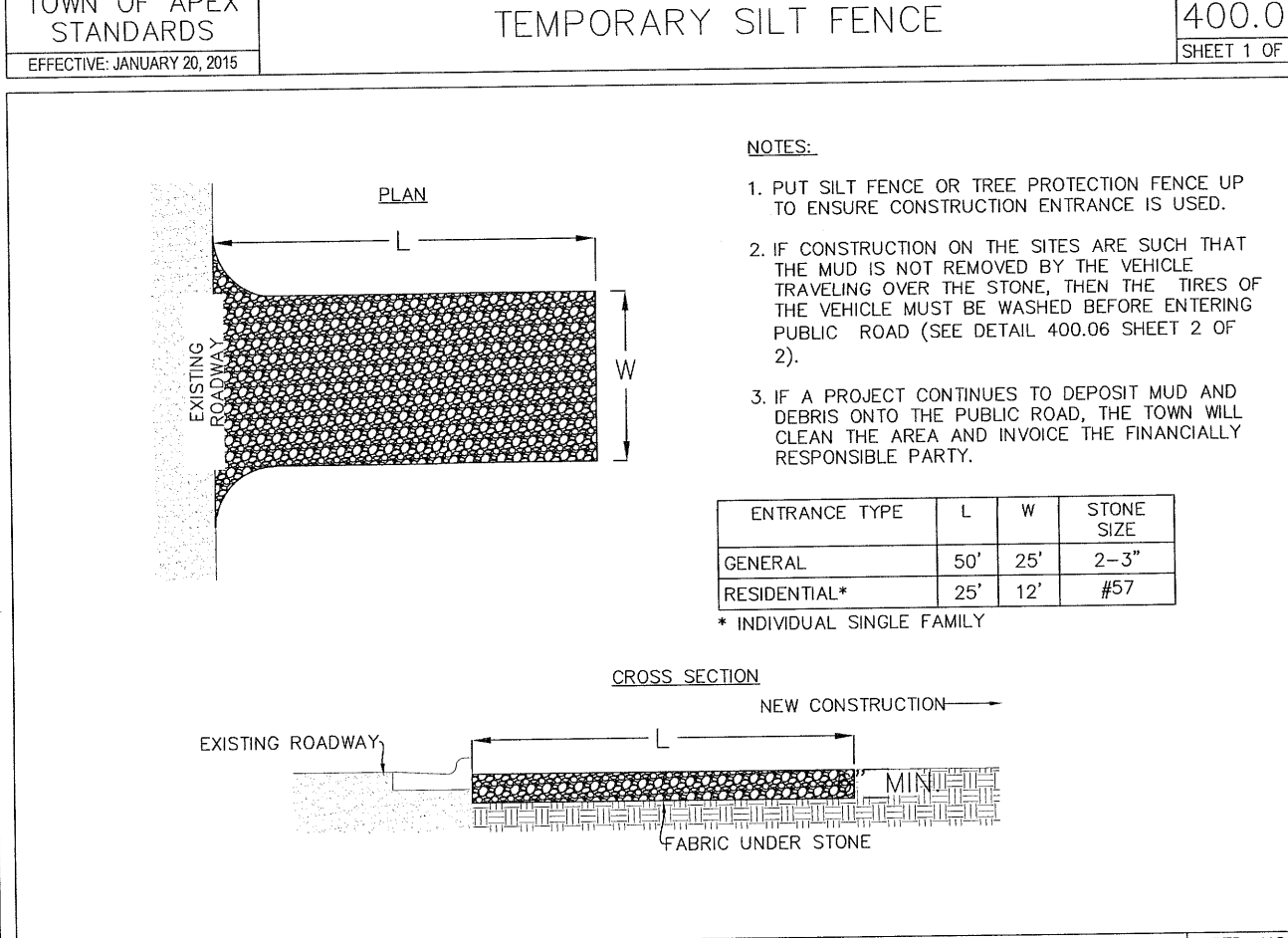
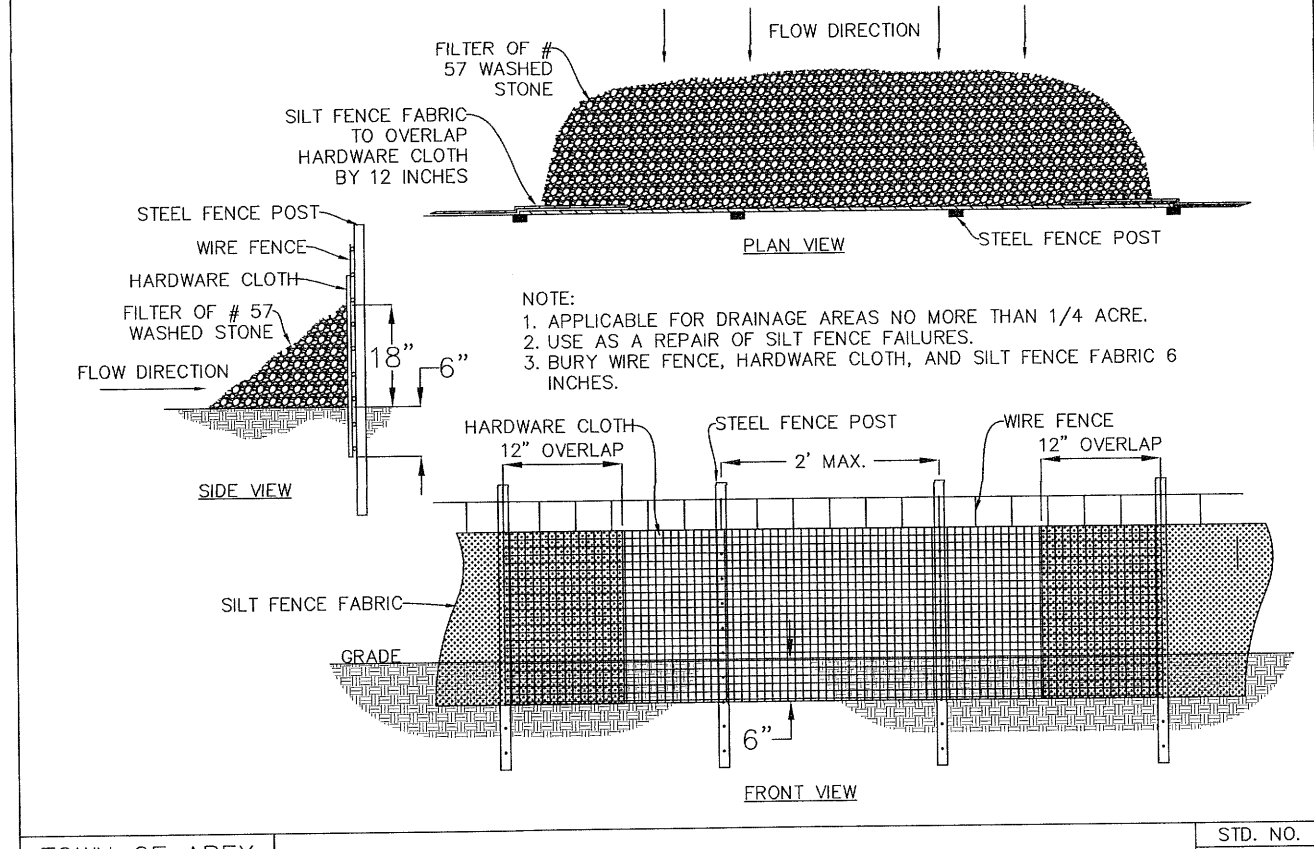
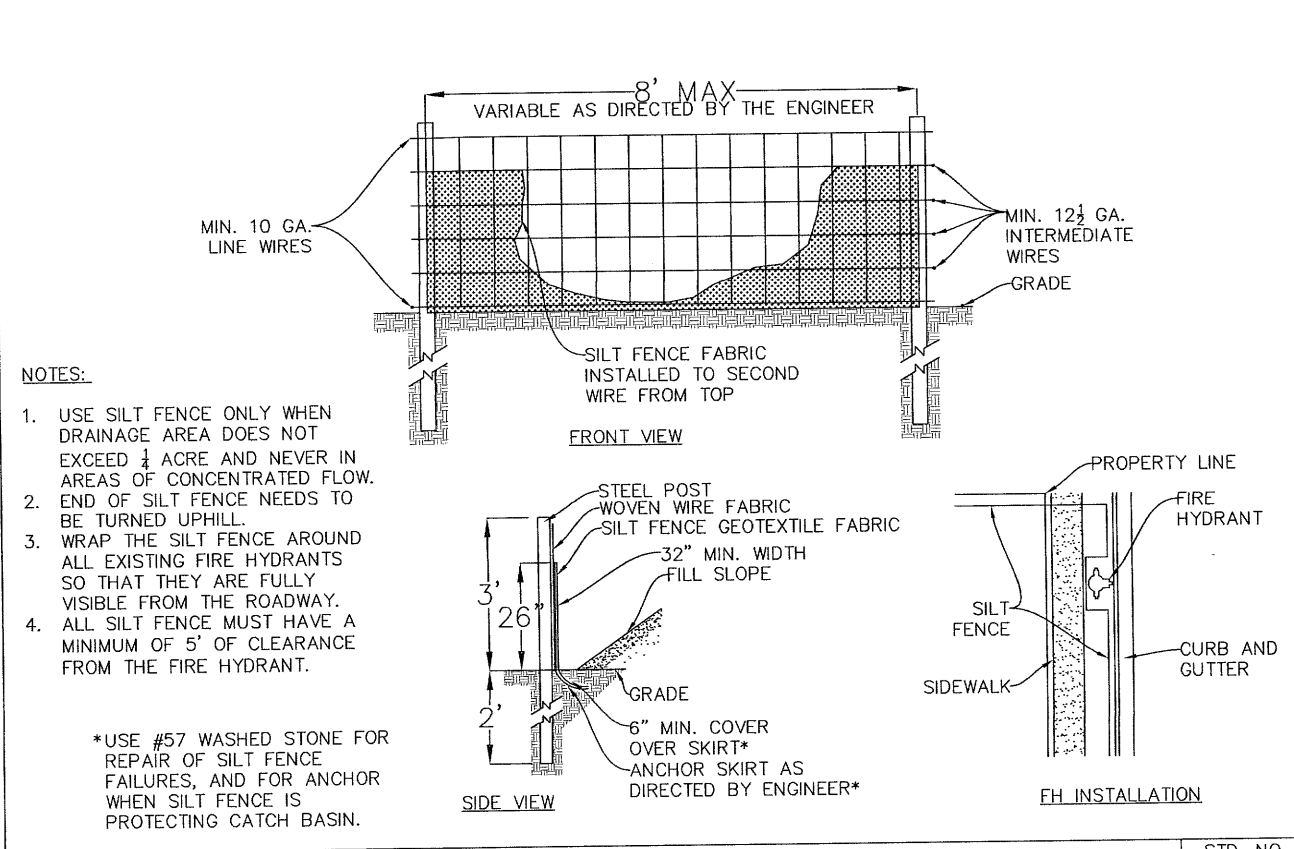
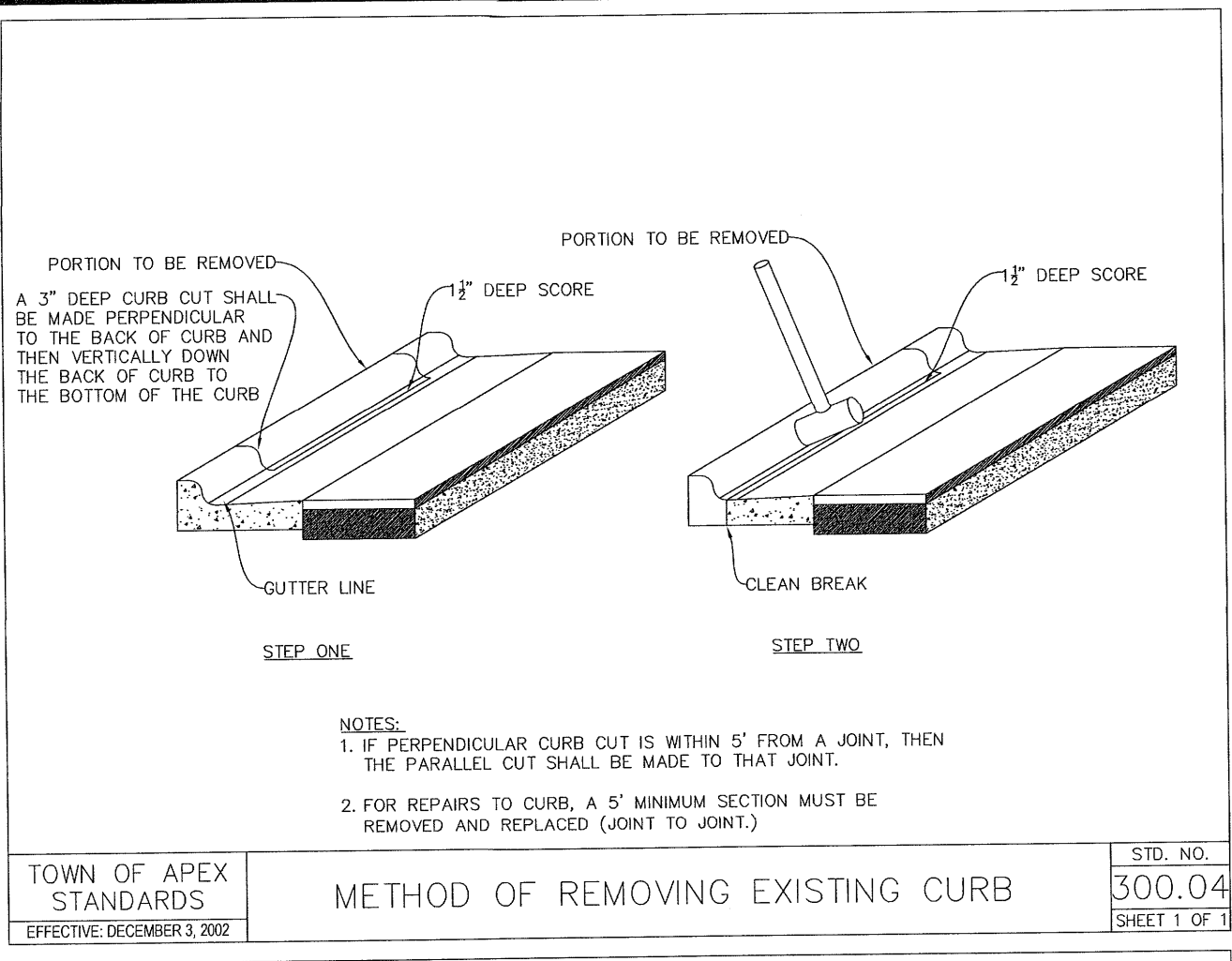
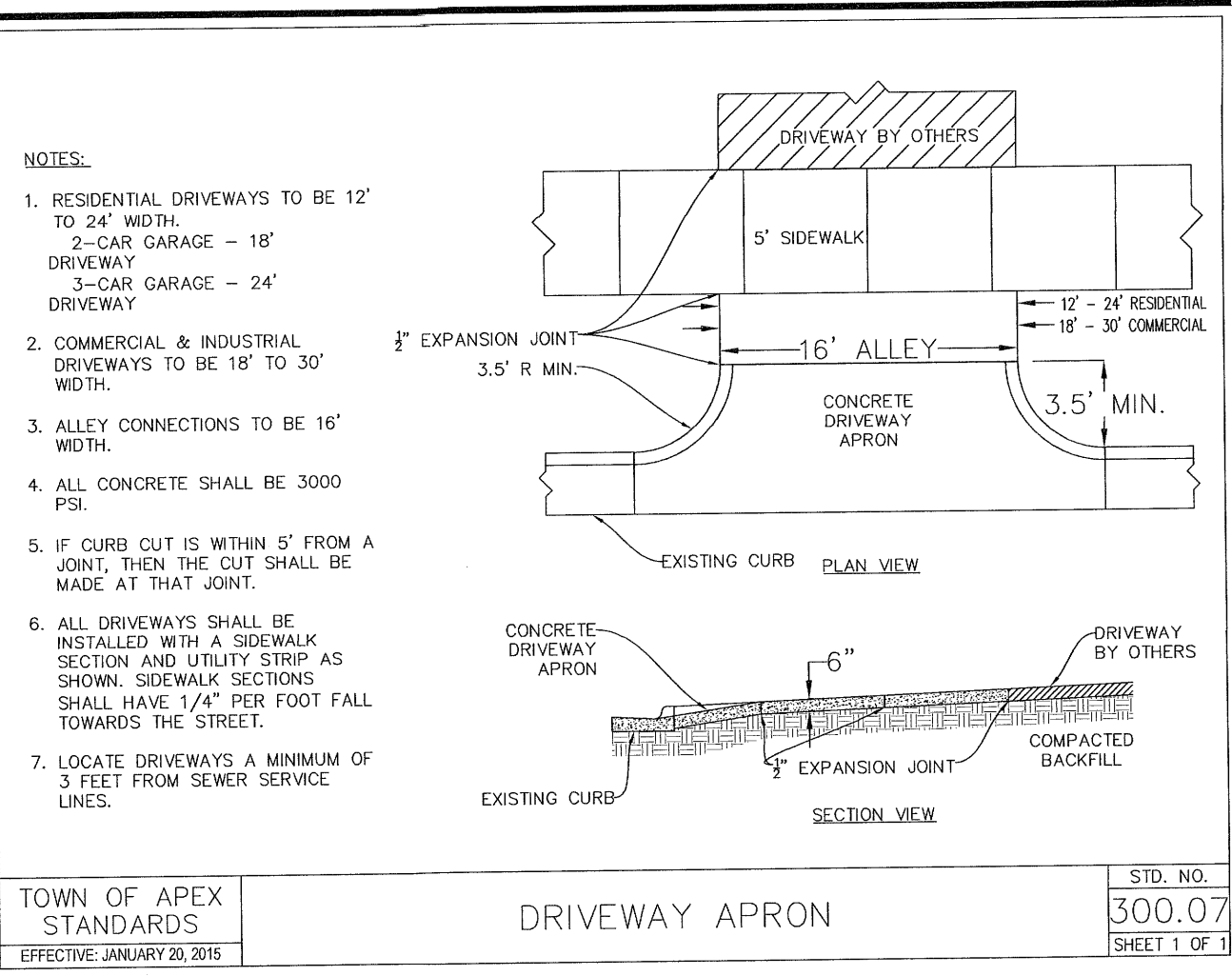
Signature	Date	Signature	Date
NA		NA	
PW-Transportation		WR - Stormwater	
Building Inspections		Planning	3/19/19
WR - Utility Engineering		Planning - Transportation	3/19/19
Electric		Fire	
WR - S & E		Parks, Recreation & Cultural Res.	



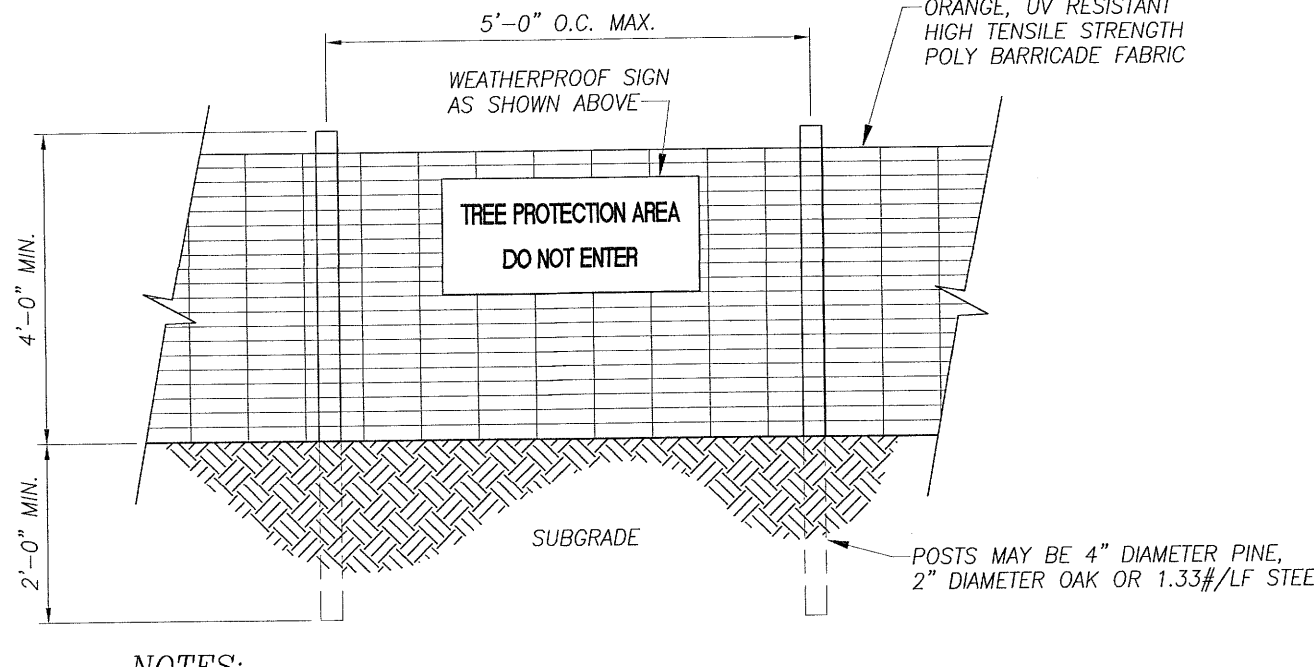
**PEMBERLEY  
PROPERTY OWNERS'  
ASSOCIATION, INC.**

ZONING: PUD-CZ  
PRESENT USE: HOA OPEN SPACE  
D.B. 16533, PG. 1996  
B.M. 2015, PGS. 406-408  
PIN 0750.01-17-6279

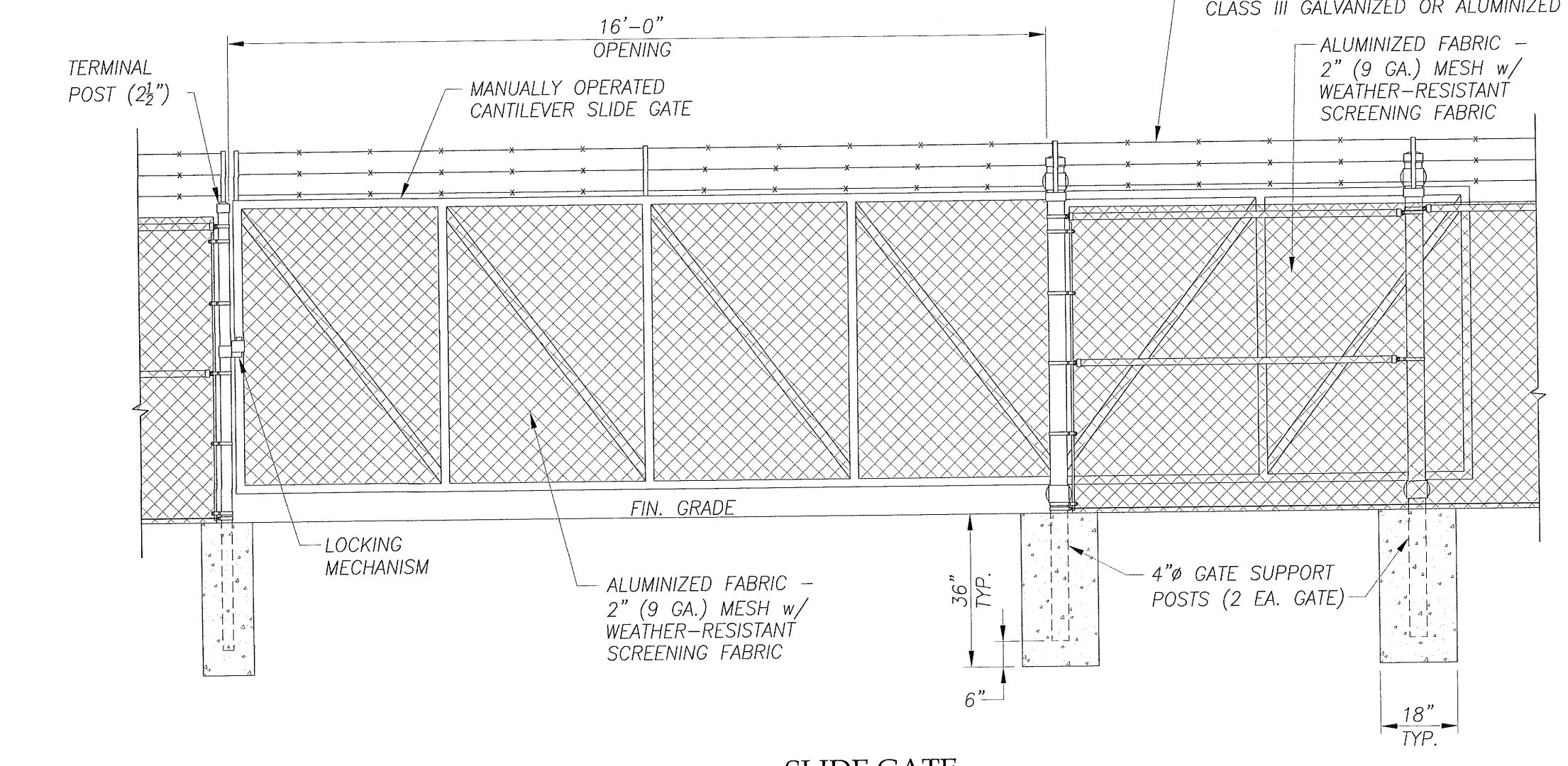
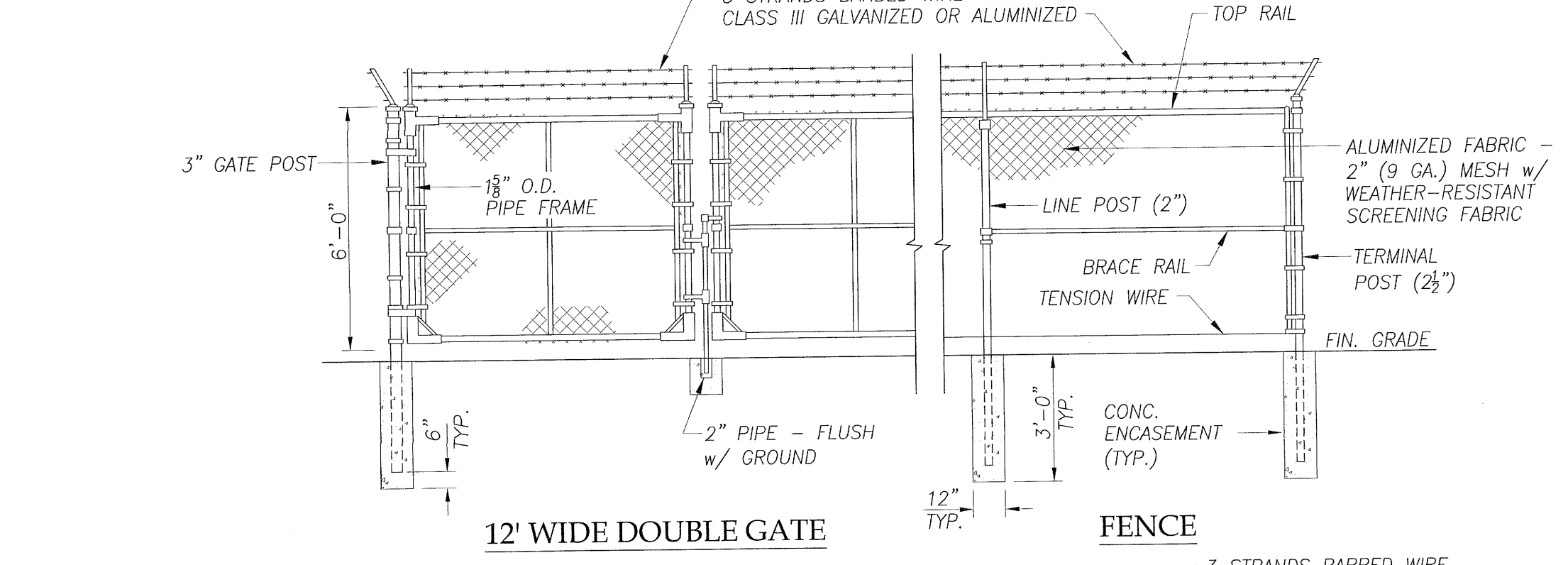




- NOTES:**
- WARNING SIGNS SHALL BE MADE OF DURABLE, WEATHERPROOF MATERIAL.
  - LETTERS SHALL BE 3" HIGH MINIMUM, CLEARLY LEGIBLE AND SPACED AS SHOWN ABOVE.
  - PLACE SIGN AT EACH END OF LINEAR PROTECTION AREAS AND AT INTERVALS NOT TO EXCEED 200' IN BETWEEN.
  - FOR TREE PROTECTION AREAS LESS THAN 200' IN PERIMETER, PROVIDE NO LESS THAN FOUR SIGNS PER PROTECTION AREA (ONE PER SIDE).
  - ATTACH SIGNS SECURELY TO FENCE POSTS AND FENCE.

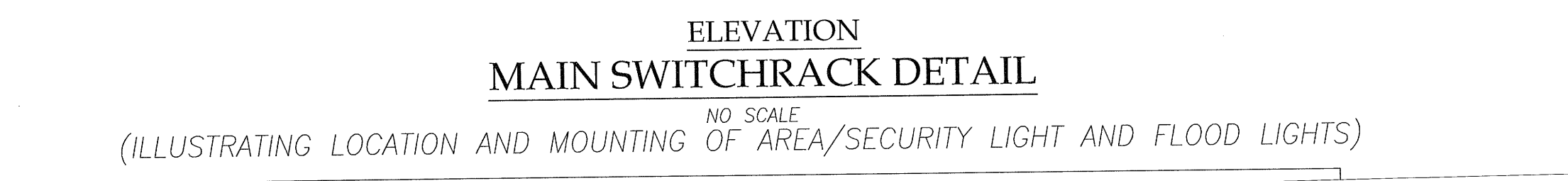
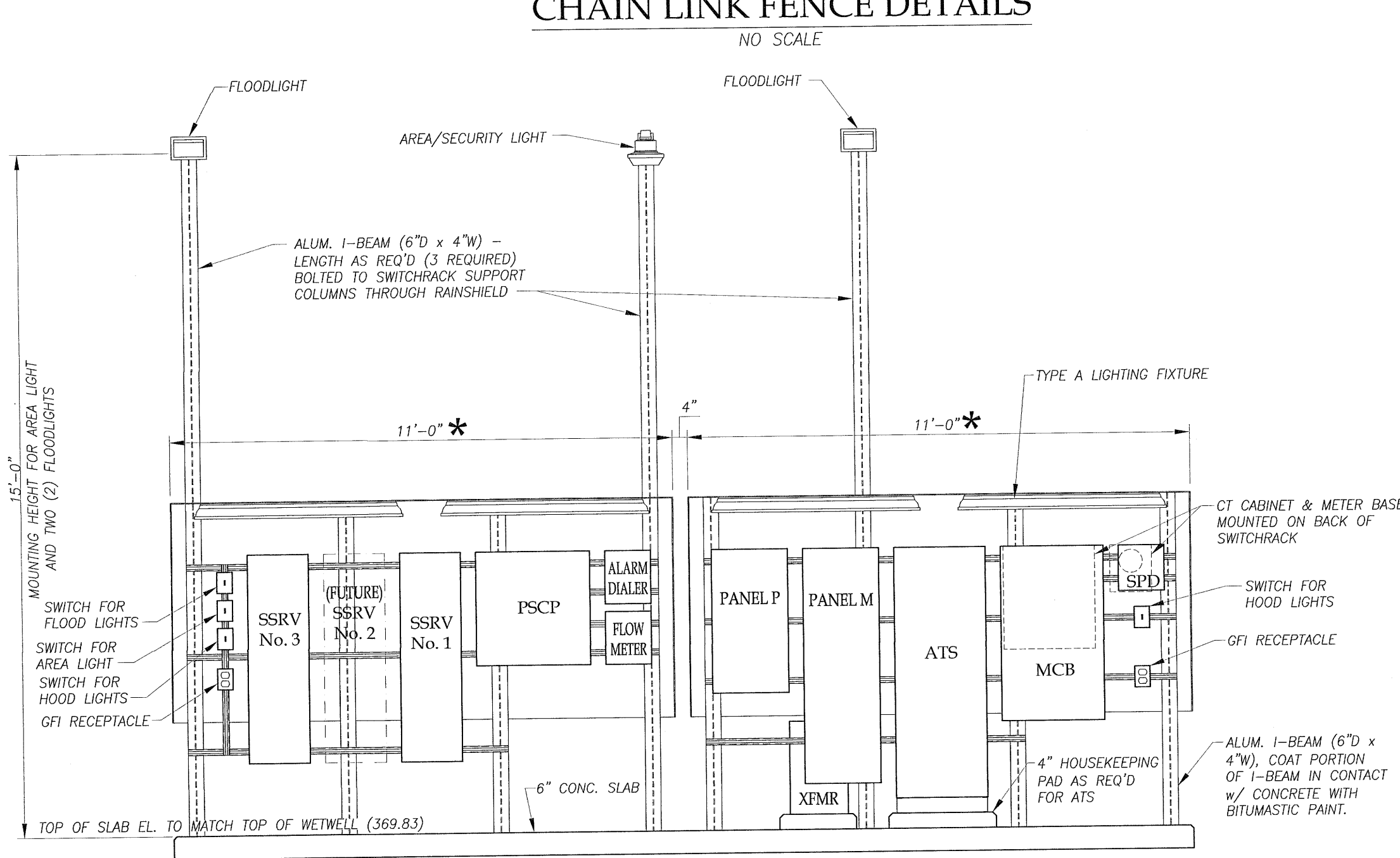


- NOTES:**
- INSTALL TREE PROTECTION FENCE AND SIGNAGE PRIOR TO CONSTRUCTION.
  - MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.



**FENCE SCREENING FABRIC NOTE**

CONTRACTOR SHALL INSTALL A UV RESISTANT TIGHT KNIT WOVEN POLYPROPYLENE CLOSED MESH PRIVACY FENCE SCREEN ON THE EXTERIOR SIDE OF THE CHAIN LINK FENCE AND GATE FABRIC. THE SCREEN SHALL HAVE 2" POLYPROPYLENE WEBBING FOR EDGE REINFORCEMENT AND BRASS GROMMETS SPACED AT 24 INCHES MAXIMUM. THE SCREEN PANELS SHALL BE SECURED TO THE FENCE FABRIC WITH UV RESISTANT SCREEN TIES. SCREEN SHALL HAVE A 5 YEAR WARRANTY, AND SHALL BE 750 SERIES AS MANUFACTURED BY FENCESCREEN, INC., OR APPROVED EQUAL.



**CHECKLIST EXCLUSIONS**

Issued for Bid Only

ITEM No.	REASON FOR EXCLUSION
1	NO DUMPSTERS OR RECYCLING BINS ON THIS PROJECT
4	NO RETAINING WALLS ARE INCLUDED IN THIS PROJECT
6	NOT A PUBLIC PROJECT - DOES NOT CONFORM TO ADA REQUIREMENTS
7	NOT A PUBLIC PROJECT - DOES NOT CONFORM TO ADA REQUIREMENTS
8	NOT A PUBLIC PROJECT - DOES NOT CONFORM TO ADA REQUIREMENTS
9	NO BICYCLE PARKING IS INCLUDED IN THIS PROJECT

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

<i>Roseanna Dalt</i>	3/25/19	N/A		
PW-Transportation	Date	WR - Stormwater	Date	
N/A		<i>J. May</i>	3/19/19	
Building Inspections	Date	Planning	Date	
<i>Duff</i>	3/15/19	<i>Paul Rayfield</i>	4/11/19	
WR - Utility Engineering	Date	Planning - Transportation	Date	
N/A		N/A		
Electric	Date	Fire	Date	
N/A		N/A		
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date	

DESIGN: JFP  
DRAWING: JLB  
CHECKED: JFP  
SCALE: AS SHOWN  
FILE: MCBPS-Minor/SP

REVISIONS:

**DIEHL & PHILLIPS, P.A.**  
CONSULTING ENGINEERS - LIC. NO. C-0465  
1500 PINEY PLAINS RD., SUITE 200  
CARY, N.C. 27518 • (919) 467-9972

**D & P**

MIDDLE CREEK REGIONAL  
PUMP STATION, FORCE MAIN, & INTERCEPTOR  
MEW INVESTMENTS, LLC  
APEX, NORTH CAROLINA

DETAILS  
MSP8  
8



# MIDDLE CREEK REGIONAL PUMP STATION, FORCE MAIN, & INTERCEPTOR

MFW INVESTMENTS, LLC  
APEX, NORTH CAROLINA

## CERTIFICATION STATEMENTS:

### BUILDING INSPECTION TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Building Inspection Department, and to the best of my knowledge and belief, conforms to the requirements established within the Town's Code of Ordinances and the North Carolina State Building Codes. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *Sumantha Curran* Date: 3/11/19

### ELECTRIC TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Electric Utilities Department, and to the best of my knowledge and belief, conforms to the requirements established in the Standard Specifications and Construction Details and the Unified Development Ordinance of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *Rody Swain* Date: 3/11/19

### FIRE DEPARTMENT TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Fire Department, and to the best of my knowledge and belief, conforms to the requirements established within the Town's Standard Specifications, Fire Protection Ordinances, and the North Carolina International Fire Code. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *Brad Hingrich* Date: 3-8-19

### PARKS, RECREATION, AND CULTURAL RESOURCES TOWN OF APEX CERTIFICATION

These plans have been reviewed by the Town of Apex, and to the best of my knowledge and belief, conform to representations made by the developer to myself and the Parks, Recreation, and Cultural Resource Advisory Commission consistent with the projects requirements for public Parks and Recreation, either in total or in part, as outlined in Section 7.3 of the Town's Unified Development Ordinance and Article IV, Section 19 of the Town Code. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *Michael* Date: 3/11/19

### PLANNING/ZONING TOWN OF APEX CERTIFICATION

This construction drawing has been reviewed by the Town of Apex Planning Department, and to the best of my knowledge and belief, conforms to the requirements established in the Standard Specifications and Construction Details and the Unified Development Ordinance of the Town of Apex. However, this signature does not constitute a variance from any requirements of the originally approved Subdivision or Site Plan cited above, or any federal, state, or local code, law, specification, rule, guideline, or ordinance. It is the sole responsibility of the owner/developer, or any of his agents or contract professionals to ensure that this construction plan meets all the aforementioned requirements.

By: *Phillip* Date: 3/19/19

### PUBLIC WORKS TRANSPORTATION TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex, and to the best of my knowledge and belief, provides an acceptable transportation system with consideration for the elements contained within the Transportation Plan conforming to the requirements established in the Standard Specifications of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *Phillip* Date: 3/25/19

### WATER RESOURCES SOIL EROSION & SEDIMENTATION CONTROL TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex, and to the best of my knowledge and belief, conforms to the requirements established in the Soil Erosion and Sedimentation Control Ordinance of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

THIS SIGNATURE DOES NOT CONSTITUTE PLAN APPROVAL. ONLY PLAN REQUIREMENTS. A SEPARATE LETTER OF PLAN APPROVAL WILL BE MAILED TO THE FINANCIALLY RESPONSIBLE PERSON AT A LATER DATE ACCORDING TO THE CONSTRUCTION SEQUENCE.

By: *NJA* Date:

### WATER RESOURCES STORMWATER ENGINEERING TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Public Water Resources Stormwater & Utility Engineering Division and to the best of my knowledge and belief, conforms to the requirements established in the Standard Specifications and Construction Details and the Unified Development Ordinance of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements. This signature serves as the stormwater permit for this project.

By: *MMS* Date: 3/8/19

### WATER RESOURCES UTILITY ENGINEERING TOWN OF APEX CERTIFICATION

This drawing has been reviewed by the Town of Apex Water Resources Department, and to the best of my knowledge and belief, conforms to the requirements established in the Standard Specifications and Construction Details of the Town of Apex. However, this signature does not constitute a variance from any requirements contained in any federal, state, or local code, law, specification, rule or ordinance. The developer/engineer/contractor is solely responsible for meeting all applicable requirements.

By: *J* Date: 3/15/19

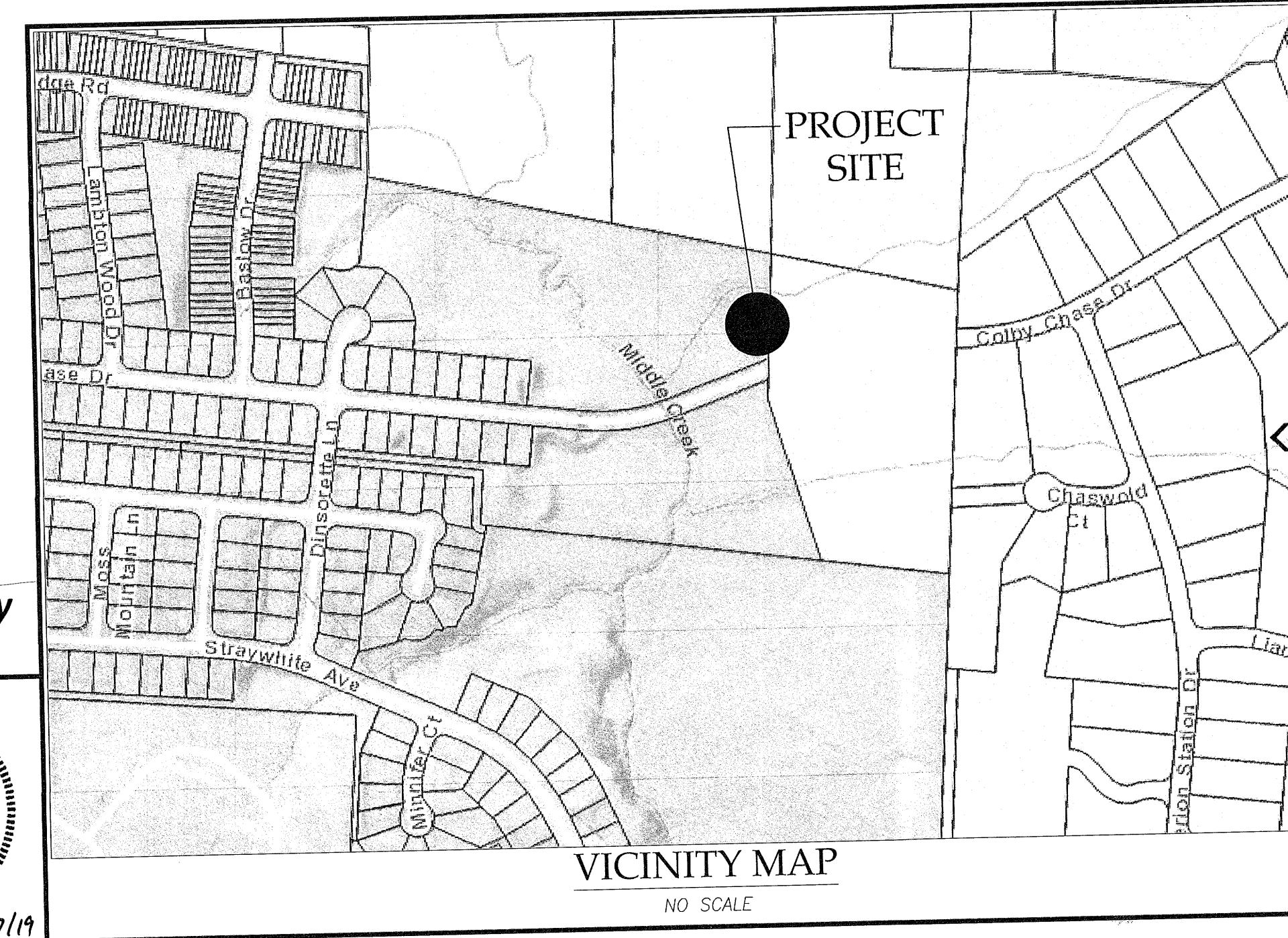
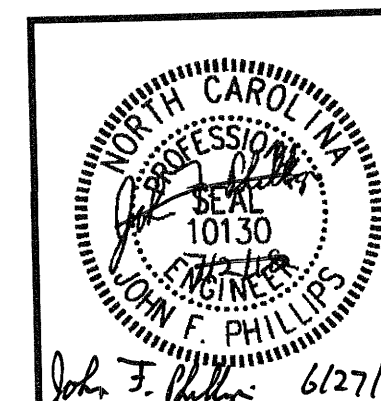
**NOTE TO CONTRACTORS**  
THIS PROJECT REQUIRED A MINOR SITE PLAN APPROVAL FROM THE TOWN OF APEX, IN ADDITION TO THE TOWN'S APPROVAL OF THE CONSTRUCTION PLANS AND SPECIFICATIONS. YOU WILL BE REQUIRED TO COMPLY WITH ALL CONDITIONS AND REQUIREMENTS, AND TO PROVIDE ALL EQUIPMENT AND CONSTRUCTION, AS SHOWN ON BOTH THE APPROVED MINOR SITE PLANS (DRAWINGS MSP1 THROUGH MSP8) AND THE APPROVED CONSTRUCTION PLANS (DRAWINGS 1 THROUGH 33). YOU WILL ALSO BE REQUIRED TO COMPLY WITH THE APPROVED PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS.

INDEX OF DRAWINGS	
1	OVERALL SITE PLAN & SHEET INDEX - CONTRACTS 1 & 2
2	PLAN AND PROFILE - 10+22.73 TO 15+00 AND LINE 'A' - CONTRACTS 1 & 2
3	PLAN AND PROFILE - 15+00 TO 20+60 - CONTRACT 2
4	PLAN AND PROFILE - 20+60 TO 26+00 AND LINE 'B' - CONTRACT 2
5	PLAN AND PROFILE - 26+00 TO 32+00 - CONTRACT 2
6	PLAN AND PROFILE - 32+00 TO 37+00, LINE 'C' & LINE 'D' - CONTRACT 2
7	PLAN AND PROFILE - 37+00 TO 42+50 - CONTRACT 2
8	PLAN AND PROFILE - 42+50 TO 48+00 - CONTRACT 2
9	PLAN AND PROFILE - 48+00 TO 53+50 - CONTRACT 2
10	PLAN AND PROFILE - 53+50 TO 59+00 - CONTRACT 2
11	PLAN AND PROFILE - 59+00 TO 64+50 - CONTRACT 2
12	PLAN AND PROFILE - 64+50 TO 70+00 - CONTRACT 2
13	PLAN AND PROFILE - 70+00 TO 75+50 - CONTRACT 2
14	PLAN AND PROFILE - 75+50 TO 81+00 - CONTRACT 2
15	PLAN AND PROFILE - 81+00 TO 86+50 - CONTRACT 2
16	PLAN AND PROFILE - 86+50 TO 92+00 - CONTRACT 2
17	PLAN AND PROFILE - 92+00 TO END - CONTRACT 2
18	TRAFFIC PLAN - CONTRACT 2
19	PUMP STATION - ENLARGED SITE PLAN - CONTRACT 1
20	PUMP STATION - PIPING PLAN - CONTRACT 1
21	PUMP STATION - TOP PLAN - CONTRACT 1
22	PUMP STATION - SECTIONAL PLAN - CONTRACT 1
23	PUMP STATION - SECTION - CONTRACT 1
24	PUMP STATION - STAKING PLAN - CONTRACT 1
25	PUMP STATION - LANDSCAPING PLAN - CONTRACT 1
26	SOLIDS CUTTER MANHOLE, SURGE RELIEF VALVE VAULT, MAGMETER VAULT DETAIL, & SAFETY CHAIN OPENING DETAIL - CONTRACT 1
27	AIR VALVE MANHOLE @ P.S. DETAIL, CHEMICAL STORAGE TANK DETAILS, & EMERGENCY BYPASS CONNECTION DETAIL - CONTRACT 1
28	SEWER DETAILS - CONTRACTS 1 & 2
29	STREET AND WATER DETAILS - CONTRACTS 1 & 2
30	EROSION CONTROL DETAILS - CONTRACTS 1 & 2
30A	EROSION CONTROL DETAILS - CONTRACTS 1 & 2
31	PUMP STATION - ELECTRICAL SITE PLAN - CONTRACT 1
32	ONE-LINE DIAGRAM AND PANEL SCHEDULES - CONTRACT 1
33	MISCELLANEOUS ELECTRICAL DETAILS - CONTRACT 1

**DIEHL & PHILLIPS, P.A.**

CONSULTING ENGINEERS - LIC. NO. C-0465  
1500 PINEY PLAINS RD., SUITE 200  
CARY, N.C. 27518 • (919) 467-9972

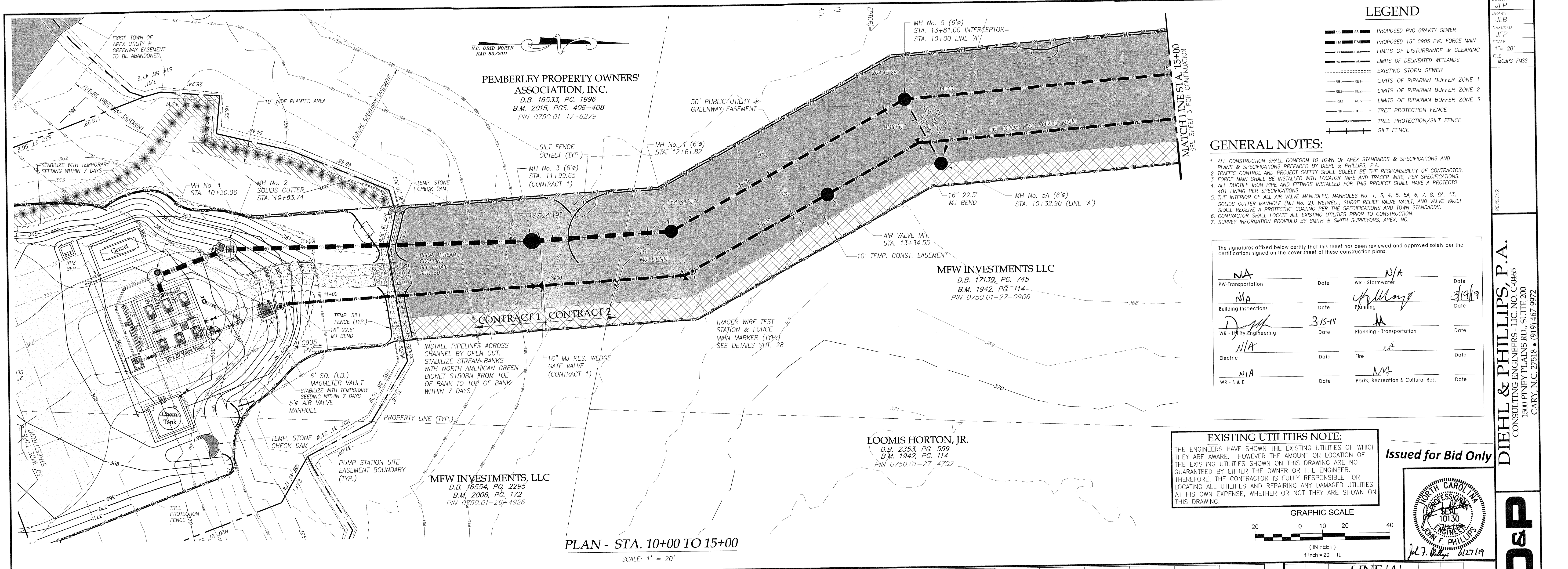
Issued for Bid Only











**LEGEND**

- PROPOSED 16" C905 PVC FORCE MAIN
- PROPOSED 16" C905 PVC FORCE MAIN
- LIMITS OF DISTURBANCE & CLEARING
- LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- LIMITS OF RIPARIAN BUFFER ZONE 1
- LIMITS OF RIPARIAN BUFFER ZONE 2
- LIMITS OF RIPARIAN BUFFER ZONE 3
- TREE PROTECTION FENCE
- TREE PROTECTION/SILT FENCE
- SILT FENCE

**GENERAL NOTES:**

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES, MANHOLES No. 1, 3, 4, 5, 6A, 6, 7, 8, 8A, 13, SOLIDS CUTTER MANHOLE (MH No. 2), WETWELL SURGE RELIEF VALVE VAULT, AND VALVE VAULT SHALL RECEIVE A PROTECTO COATING PER THE SPECIFICATIONS AND TOWN STANDARDS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

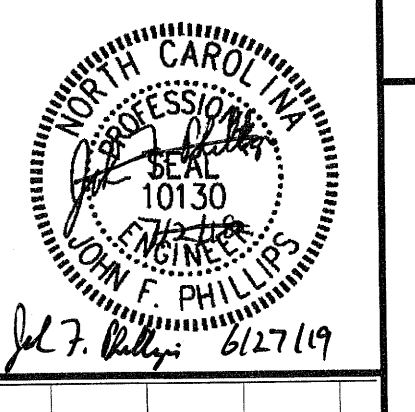
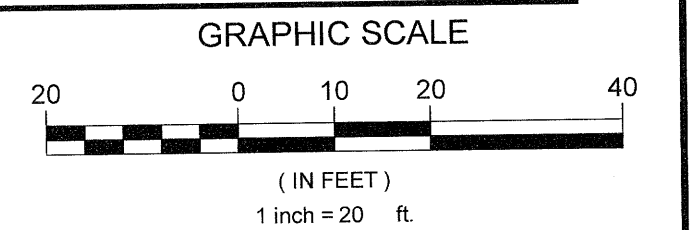
The signatures attested below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

NA	Date	WR - Stormwater	Date
N/A	Date	Planning	3/19/19
Building Inspections	3/15/19	WR - Utility Engineering	Date
N/A	Date	Fire	Date
N/A	Date	WR - S & E	Date
N/A	Date	Parks, Recreation & Cultural Res.	Date

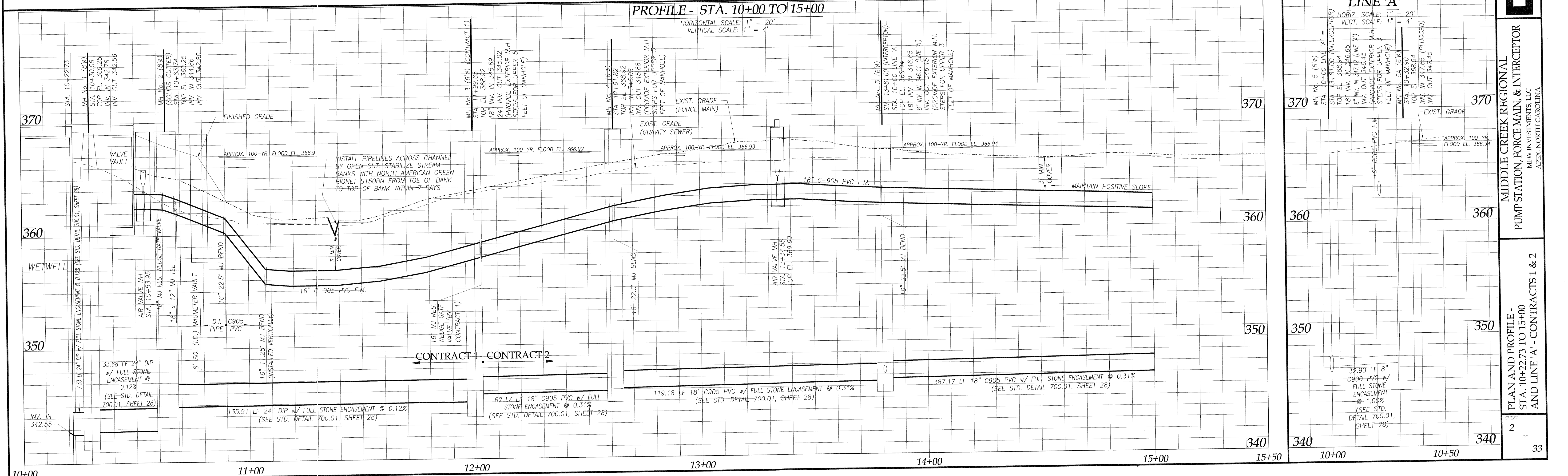
**EXISTING UTILITIES NOTE:**

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

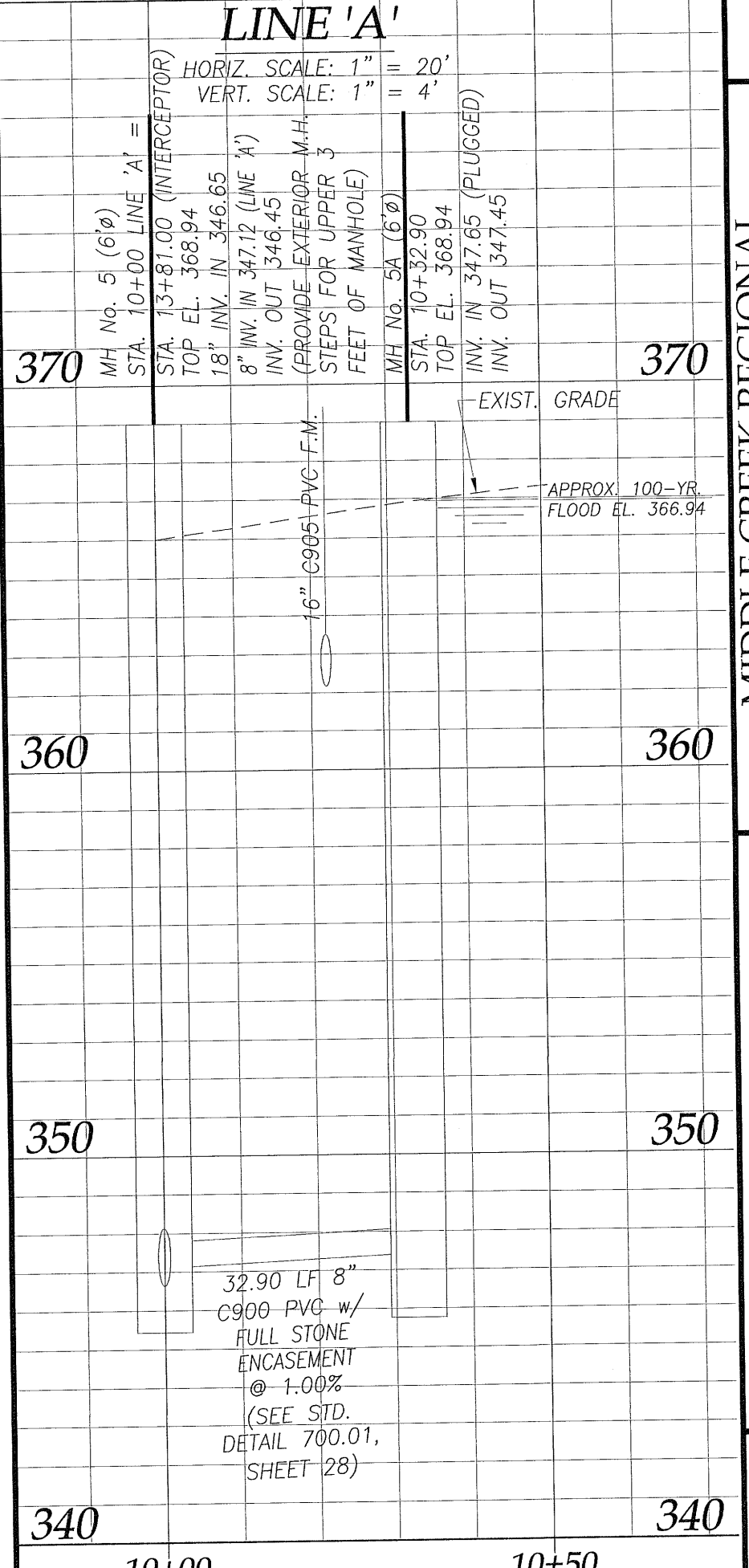
**Issued for Bid Only**



**PLAN - STA. 10+00 TO 15+00**  
SCALE: 1" = 20'



**PROFILE - STA. 10+00 TO 15+00**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 4'



**LINE 'A'**  
HORIZ. SCALE: 1" = 20'  
VERT. SCALE: 1" = 4'

DESIGN: JFP  
DRAWN: JLB  
CHECKED: JFP  
SCALE: 1" = 20'  
FILE: MCRPS-FMS5

**DIEHL & PHILLIPS, P.A.**  
CONSULTING ENGINEERS - LIC. NO. C-0465  
1300 PINEY PLAINS RD., SUITE 200  
CARY, N.C. 27518 • (919) 467-9972

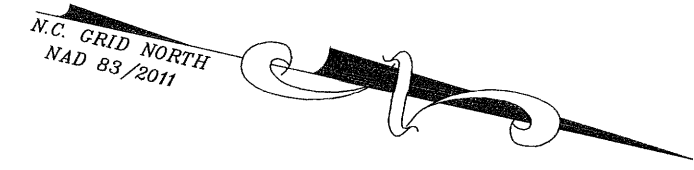
**D&P**

MIDDLE CREEK REGIONAL  
PUMP STATION, FORCE MAIN, & INTERCEPTOR  
MFV INVESTMENTS, LLC  
APEX, NORTH CAROLINA

PLAN AND PROFILE -  
STA. 10+22.73 TO 15+00  
AND LINE 'A' - CONTRACTS 1 & 2

SHEET 2 OF 33





MFW INVESTMENTS LLC  
 D.B. 17139, PG. 745  
 B.M. 1942, PG. 114  
 PIN 0750.01-27-0906

**LEGEND**

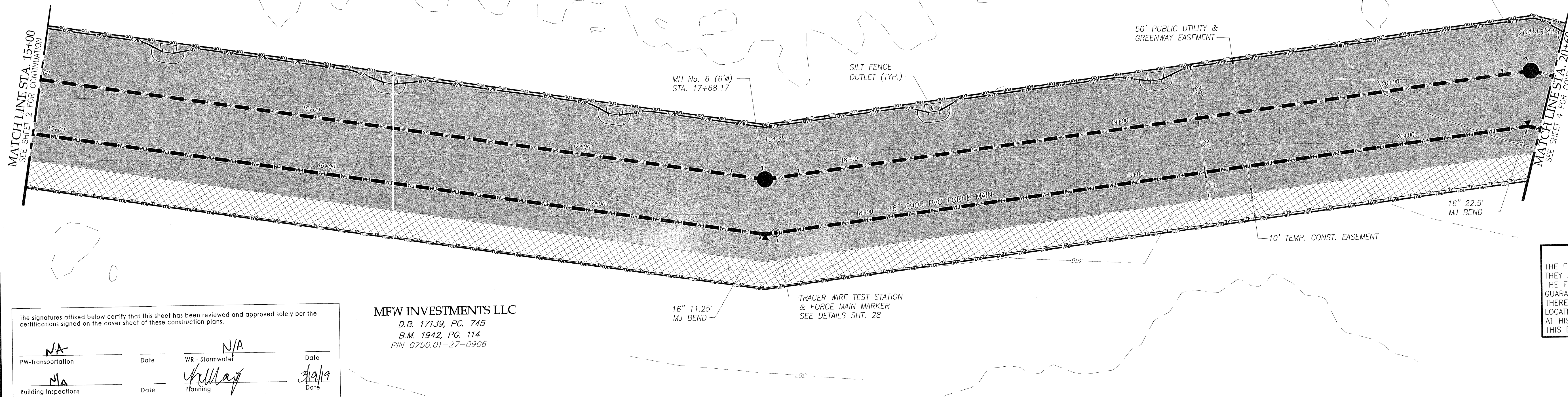
- PROPOSED 18" PVC GRAVITY SEWER
- PROPOSED 16" C905 PVC FORCE MAIN
- LIMITS OF DISTURBANCE & CLEARING
- LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- TREE PROTECTION FENCE
- TREE PROTECTION/SILT FENCE
- SILT FENCE

**GENERAL NOTES:**

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES, MANHOLES No. 1, 3, 4, 5, 6A, 6, 7, 8, 8A, 13, SOLIDS CUTTER MANHOLE (MH No. 2), WETWELL, SURGE RELIEF VALVE VAULT, AND VALVE VAULT SHALL RECEIVE A PROTECTO COATING PER THE SPECIFICATIONS AND TOWN STANDARDS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

**EXISTING UTILITIES NOTE:**

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

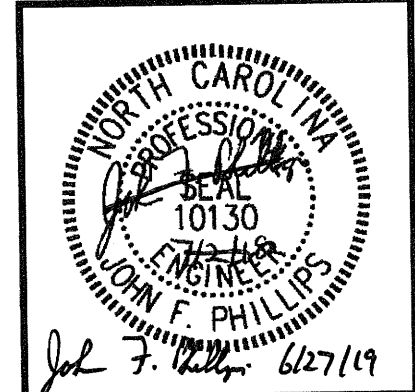
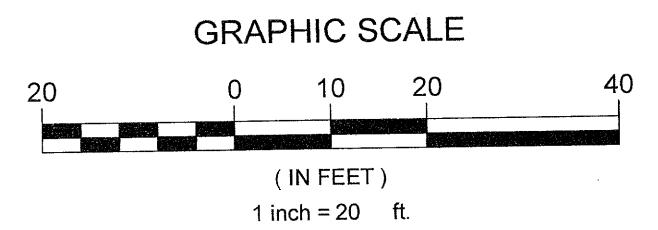


The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

NA	Date	WR - Stormwater	N/A	Date
MA	Date	Planning	3/15/19	Date
DA	3/15/19	WR - Utility Engineering	NA	Date
NA	Date	Electric	NA	Date
NA	Date	WR - S & E	NA	Date
NA	Date	Parks, Recreation & Cultural Res.	NA	Date

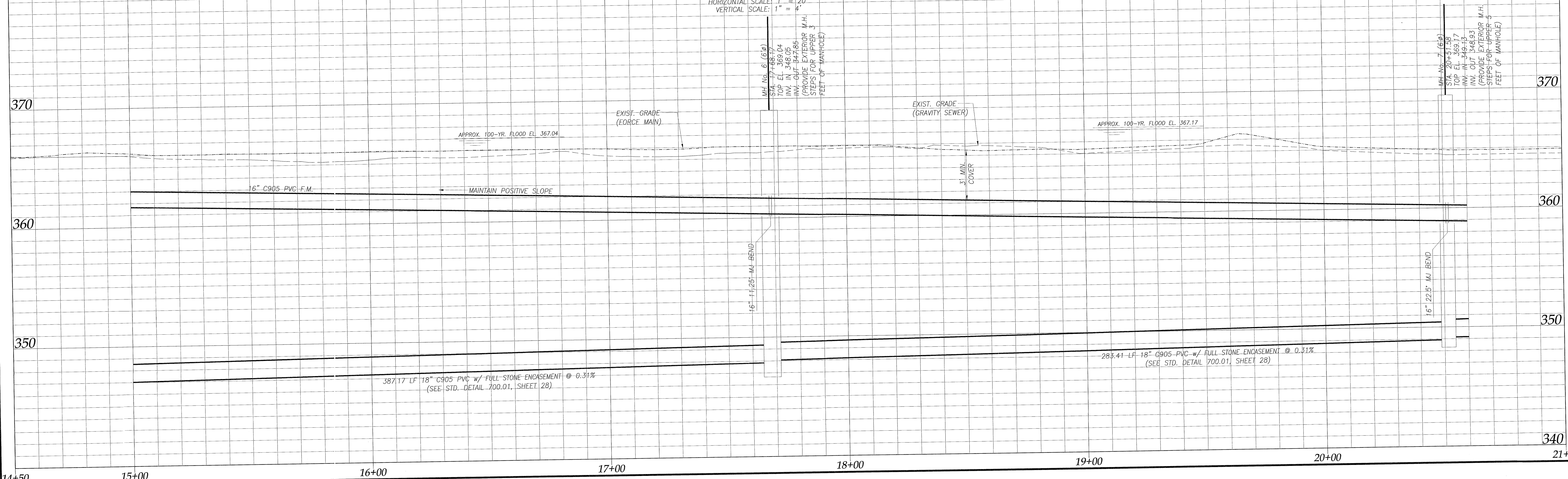
MFW INVESTMENTS LLC  
 D.B. 17139, PG. 745  
 B.M. 1942, PG. 114  
 PIN 0750.01-27-0906

**PLAN - STA. 15+00 TO 20+60**  
 SCALE: 1" = 20'



**Issued for Bid Only**

**PROFILE - STA. 15+00 TO 20+60**

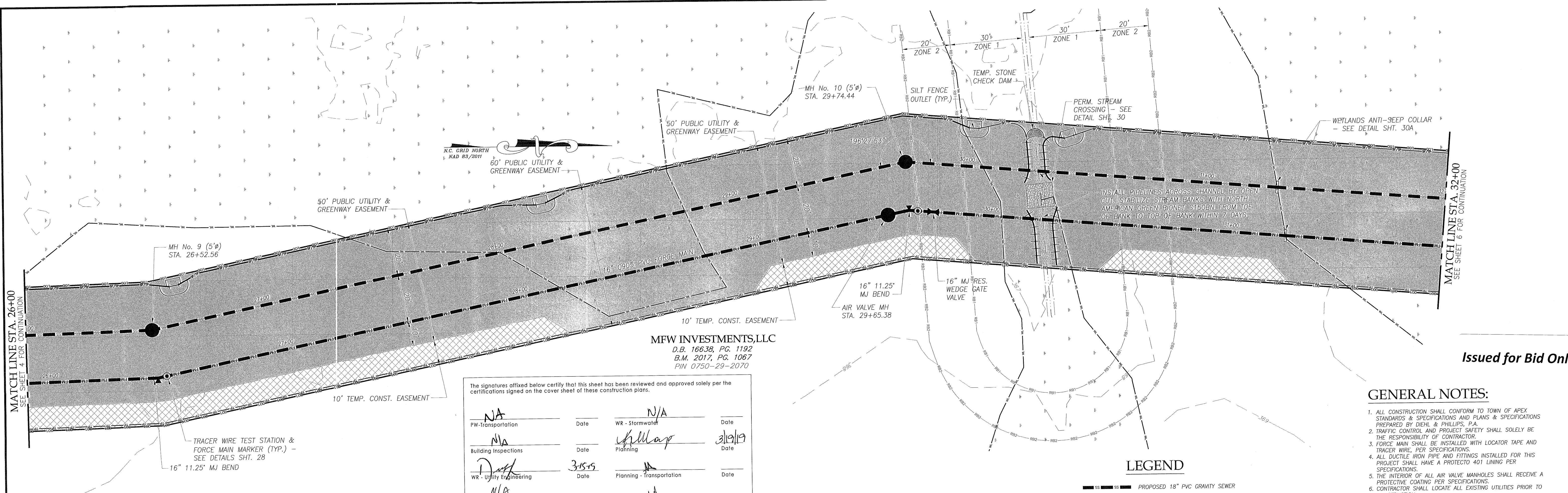


DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMS5  
 DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
 D & P  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA  
 PLAN AND PROFILE -  
 STA. 15+00 TO 20+60 - CONTRACT 2  
 SHEET 3 OF 33









MATCH LINE STA. 26+00  
 SEE SHEET 4 FOR CONTINUATION

MATCH LINE STA. 32+00  
 SEE SHEET 6 FOR CONTINUATION

MFW INVESTMENTS, LLC  
 D.B. 16638, PG. 1192  
 B.M. 2017, PG. 1067  
 PIN 0750-29-2070

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

PW-Transportation	Date	WR - Stormwater	Date
NA		N/A	
Building Inspections	Date	Planning	Date
N/A		J. H. Map	3/19/19
WR - Utility Engineering	Date	Planning - Transportation	Date
D. H. [Signature]	3-15-19	N/A	
Electric	Date	Fire	Date
N/A		N/A	
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date
		MA	

Issued for Bid Only

**GENERAL NOTES:**

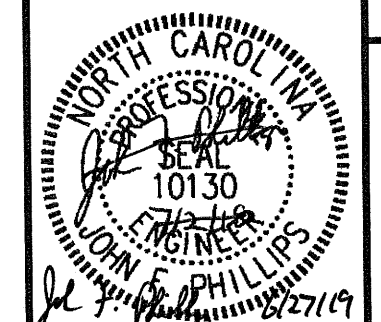
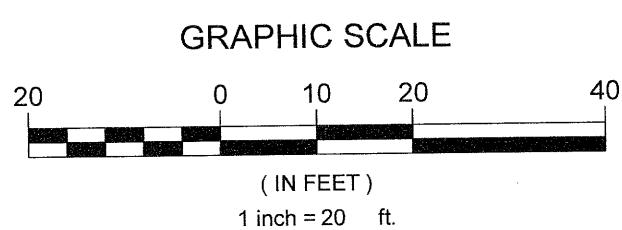
- ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
- TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
- FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
- ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
- THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTIVE COATING PER SPECIFICATIONS.
- CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
- SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

**LEGEND**

- 18" — 18" PROPOSED 18" PVC GRAVITY SEWER
- 16" — 16" PROPOSED 16" C905 PVC FORCE MAIN
- 100' — 100' LIMITS OF DISTURBANCE & CLEARING
- 10' — 10' LIMITS OF DELINEATED WETLANDS
- ..... EXISTING STORM SEWER
- R1 — R1 LIMITS OF RIPARIAN BUFFER ZONE 1
- R2 — R2 LIMITS OF RIPARIAN BUFFER ZONE 2
- 10' — 10' TREE PROTECTION FENCE
- 10' — 10' TREE PROTECTION/SILT FENCE
- — — SILT FENCE

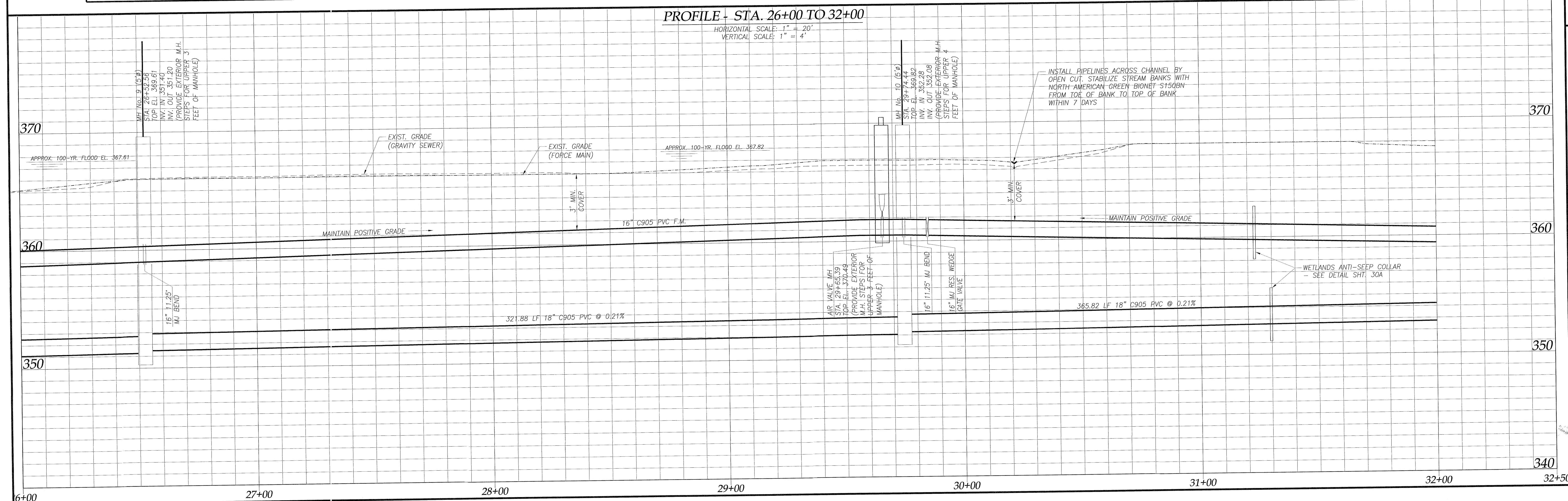
**EXISTING UTILITIES NOTE:**  
 THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

**PLAN - STA. 26+00 TO 32+00**  
 SCALE: 1" = 20'



**PROFILE - STA. 26+00 TO 32+00**

HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 4'





MFW INVESTMENTS, LLC  
 D.B. 16638, PG. 1192  
 B.M. 2017, PG. 1067  
 PIN 0750-19-7053

MFW INVESTMENTS, LLC  
 D.B. 17279, PG. 1698  
 PIN 0750.01-29-0721

**GENERAL NOTES:**

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTIVE COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

**LEGEND**

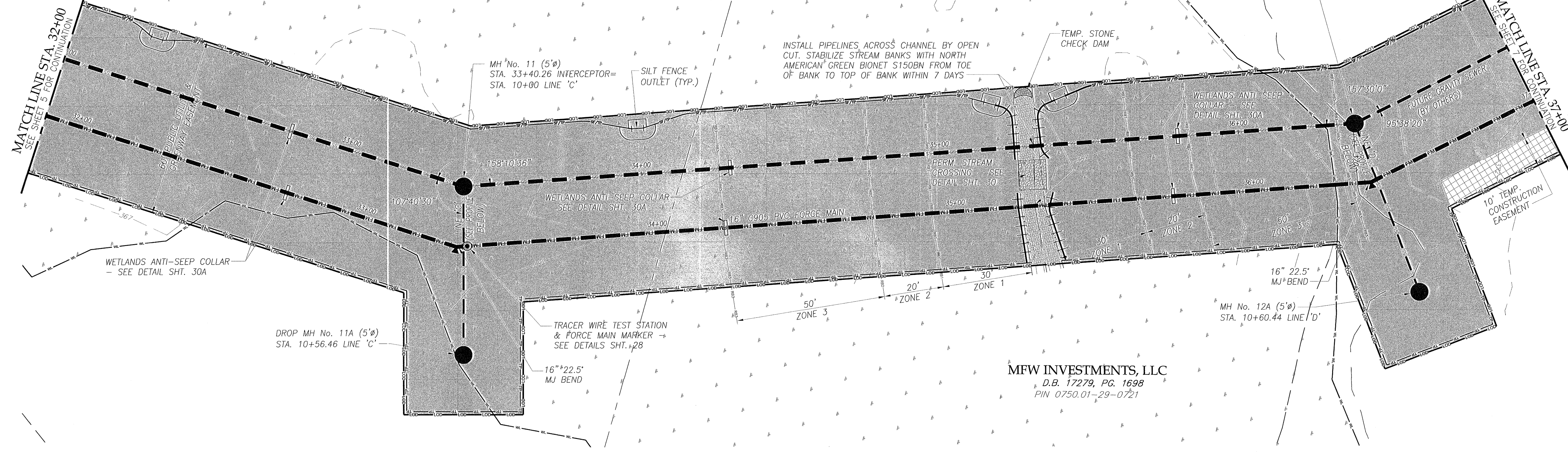
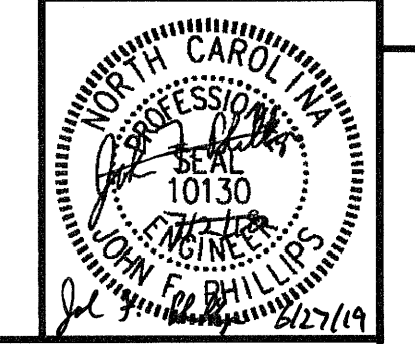
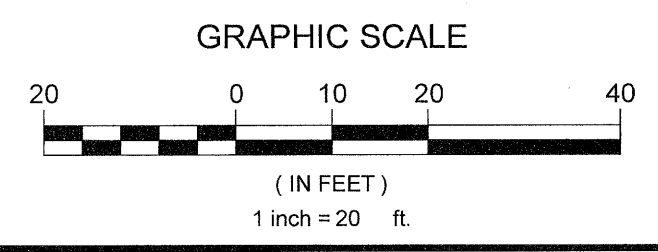
- 18" C905 PVC FORCE MAIN
- 16" C905 PVC FORCE MAIN
- LIMITS OF DISTURBANCE & CLEARING
- LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- LIMITS OF RIPARIAN BUFFER ZONE 1
- LIMITS OF RIPARIAN BUFFER ZONE 2
- LIMITS OF RIPARIAN BUFFER ZONE 3
- TREE PROTECTION FENCE
- TREE PROTECTION/SILT FENCE
- SILT FENCE

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

Signature	Date	Signature	Date
NA		NA	
PW-Transportation		WR - Stormwater	
NA		Planning	2/19/19
Building Inspections		NA	
WR - Utility Engineering	3/15/19	Planning - Transportation	
NA		NA	
Electric		Fire	
NA		NA	
WR - S & E		Parks, Recreation & Cultural Res.	

**EXISTING UTILITIES NOTE:**  
 THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

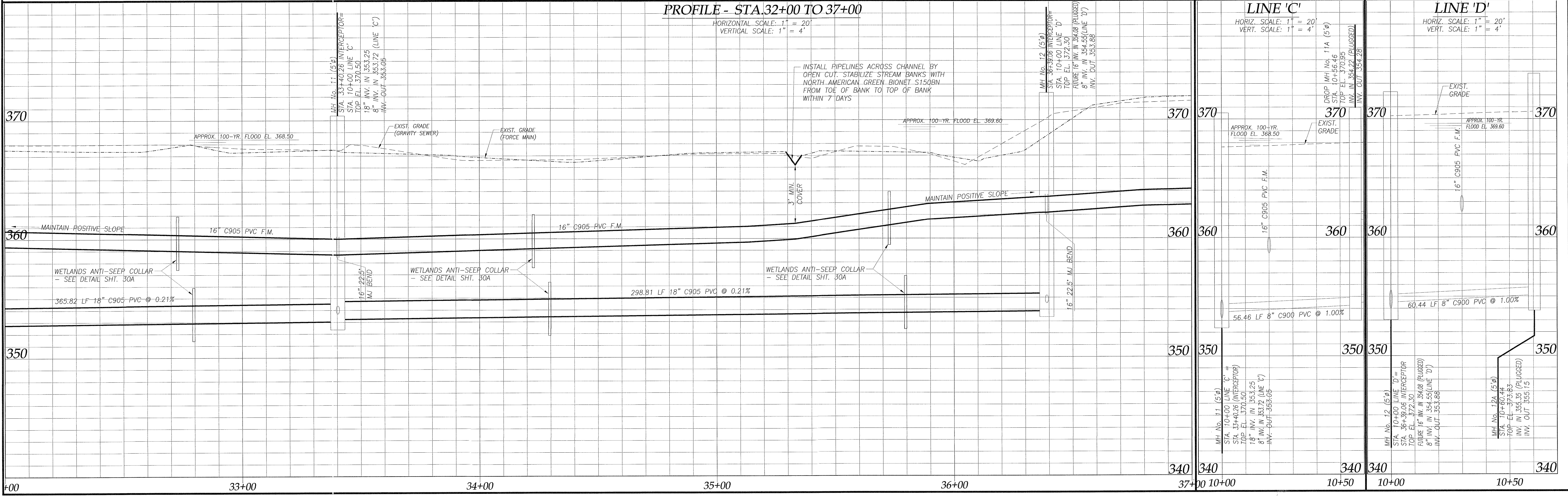
Issued for Bid Only



**PLAN - STA. 32+00 TO 37+00**  
 SCALE: 1" = 20'

**PROFILE - STA. 32+00 TO 37+00**

HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 4'



DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMS

REVISIONS:

**DIEHL & PHILLIPS, P.A.**  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972

**D&P**

MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR

PLAN AND PROFILE -  
 STA. 32+00 TO 37+00, LINE 'C' &  
 LINE 'D' - CONTRACT 2

SHEET 6 OF 33



**LEGEND**

- FM — FM PROPOSED 16" C905 PVC FORCE MAIN
- LDC --- LDC LIMITS OF DISTURBANCE & CLEARING
- LDD --- LDD LIMITS OF DELINEATED WETLANDS
- E S E S EXISTING STORM SEWER
- TP --- TP TREE PROTECTION FENCE
- T/P --- T/P TREE PROTECTION/SILT FENCE
- +++++ S S S S SILT FENCE

**GENERAL NOTES:**

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTO COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

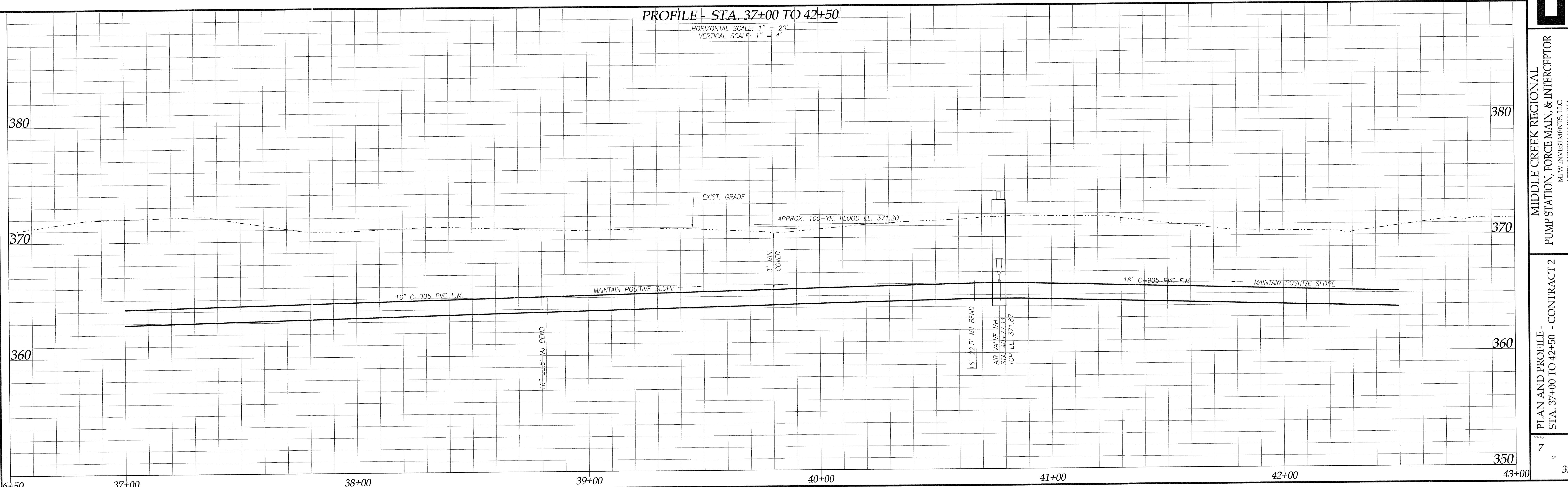
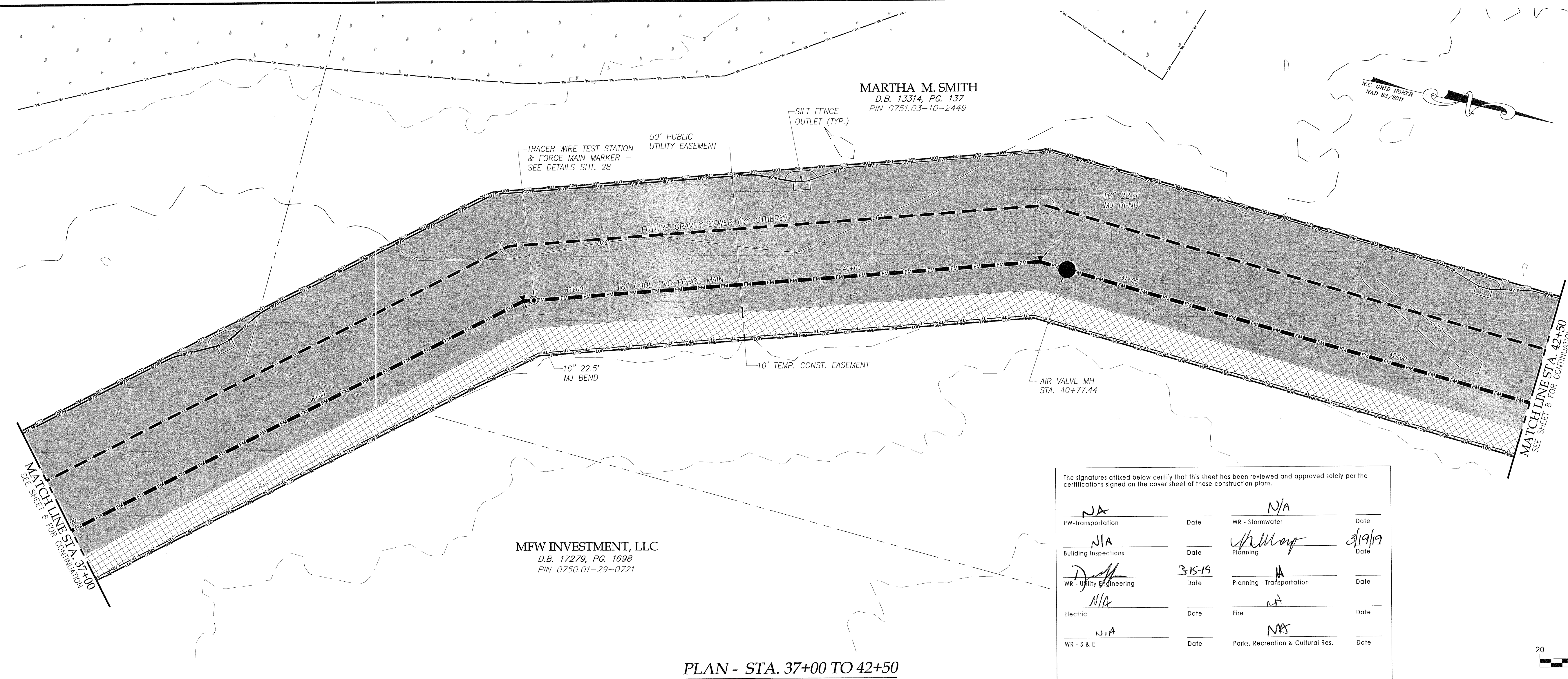
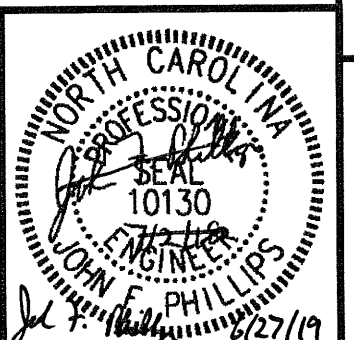
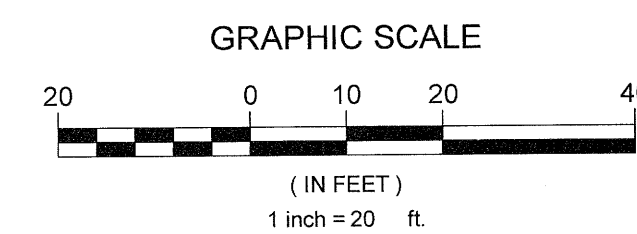
**Issued for Bid Only**

**EXISTING UTILITIES NOTE:**

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

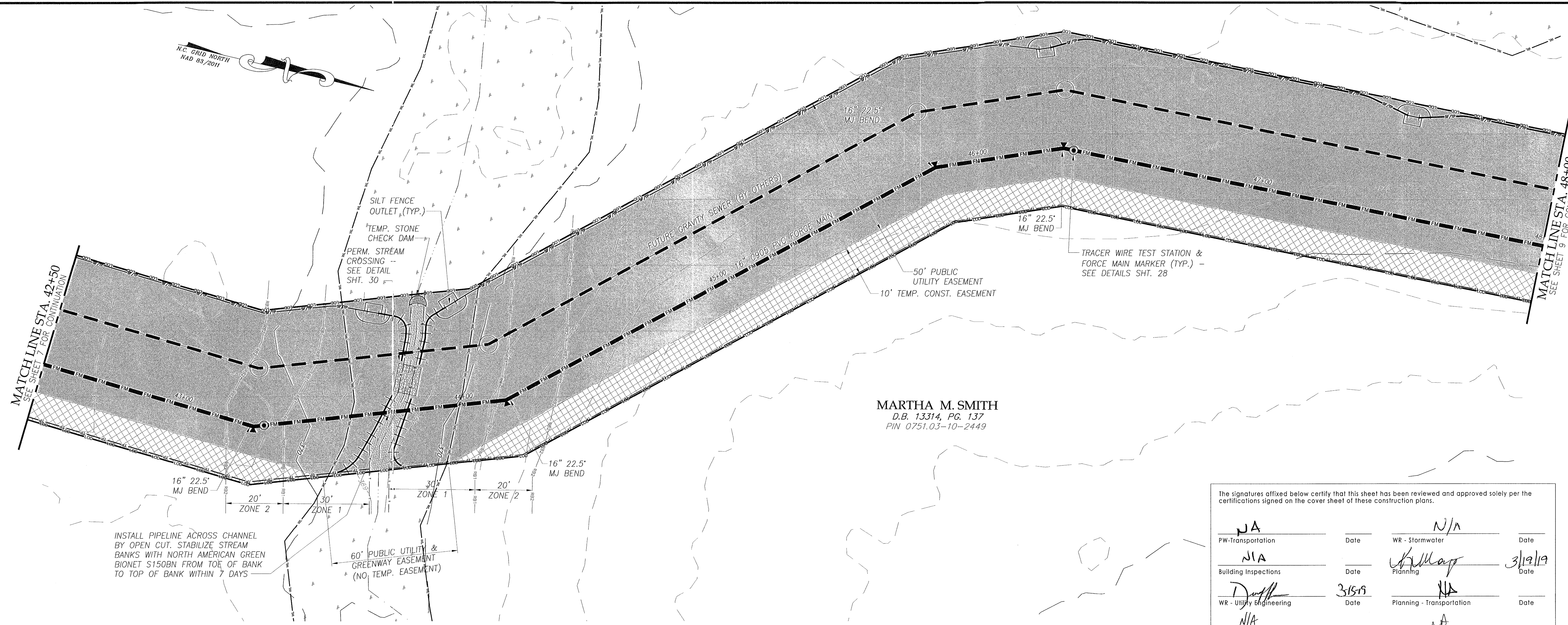
The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

<i>NA</i>	Date	<i>NA</i>	Date
PW-Transportation		WR - Stormwater	
<i>NA</i>	Date	<i>Shelley</i>	3/19/19
Building Inspections		Planning	
<i>D. Smith</i>	3-15-19	<i>NA</i>	
WR - Utility Engineering		Planning - Transportation	
<i>NA</i>	Date	<i>NA</i>	Date
Electric		Fire	
<i>NA</i>	Date	<i>NR</i>	Date
WR - S & E		Parks, Recreation & Cultural Res.	



DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMS5  
 PROJECT: MIDDLE CREEK REGIONAL PUMP STATION, FORCE MAIN & INTERCEPTOR  
 STA. 37+00 TO 42+50 - CONTRACT 2  
 PLAN AND PROFILE - STA. 37+00 TO 42+50 - CONTRACT 2  
 SHEET 7 OF 33  
**DIEHL & PHILLIPS, P.A.**  
 CONSULTING ENGINEERS - LIC. NO. C0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
**D&P**  
 MIDDLE CREEK REGIONAL PUMP STATION, FORCE MAIN & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA





**LEGEND**

- FM — FM PROPOSED 16" C905 PVC FORCE MAIN
- L — L LIMITS OF DISTURBANCE & CLEARING
- W — W LIMITS OF DELINEATED WETLANDS
- S — S EXISTING STORM SEWER
- RB1 — RB1 LIMITS OF RIPARIAN BUFFER ZONE 1
- RB2 — RB2 LIMITS OF RIPARIAN BUFFER ZONE 2
- TP — TP TREE PROTECTION FENCE
- SF — SF SILT FENCE

**GENERAL NOTES:**

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTO COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

MARTHA M. SMITH  
D.B. 13314, PG. 137  
PIN 0751.03-10-2449

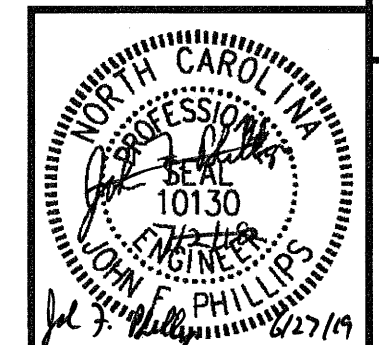
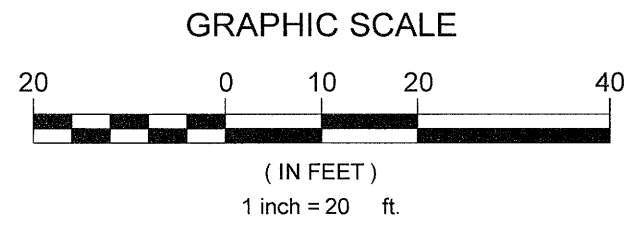
**Issued for Bid Only**

**EXISTING UTILITIES NOTE:**

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

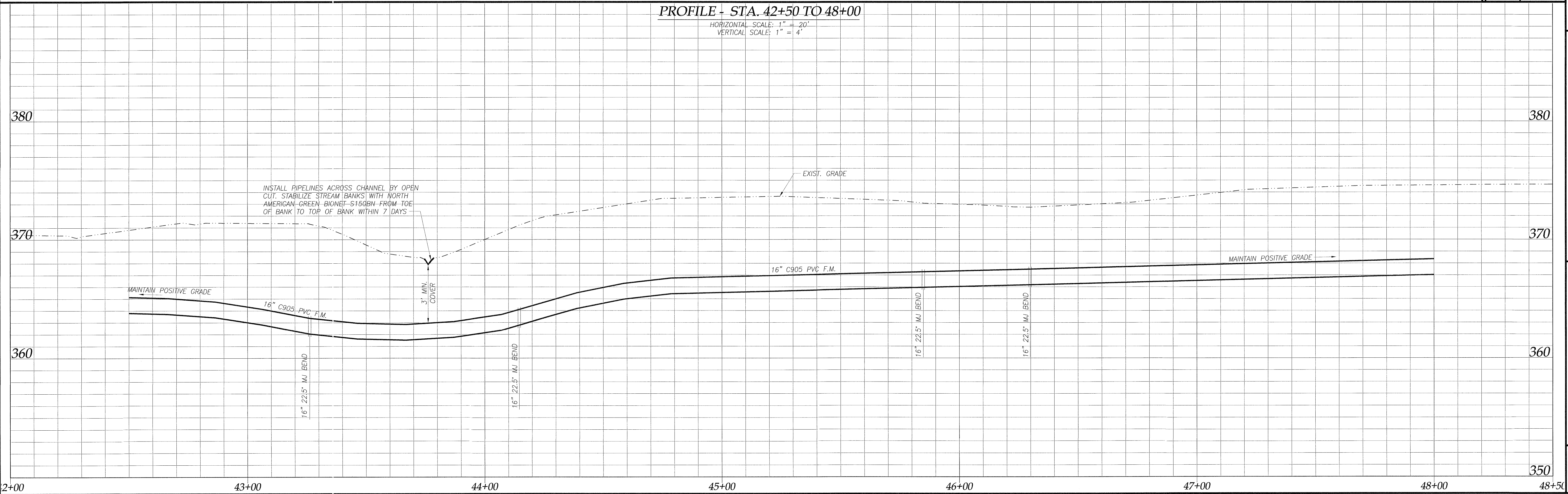
JA PW-Transportation Date	N/A WR - Stormwater Date
JA Building Inspections Date	3/19/19 Planning Date
Duff WR - Utility Engineering Date	3/15/19 Planning - Transportation Date
N/A Electric Date	N/A Fire Date
N/A WR - S & E Date	N/A Parks, Recreation & Cultural Res. Date



**PLAN - STA. 42+50 TO 48+00**  
SCALE: 1" = 20'

**PROFILE - STA. 42+50 TO 48+00**

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 4'



DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMS5  
 PROJECT: MIDDLE CREEK REGIONAL PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 CLIENT: MRV INVESTMENTS, LLC  
 ADDRESS: APEX, NORTH CAROLINA  
 CONTRACT: PLAN AND PROFILE - STA. 42+50 TO 48+00 - CONTRACT 2  
 SHEET: 8 OF 33



MARTHA M. SMITH  
D.B. 13314, PG. 137  
PIN 0751.03-10-2449

**LEGEND**

- FM — FM PROPOSED 16" C905 PVC FORCE MAIN
- LDC --- LDC LIMITS OF DISTURBANCE & CLEARING
- LWD --- LWD LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- TP --- TP TREE PROTECTION FENCE
- TPF --- TPF TREE PROTECTION/SILT FENCE
- SF --- SF SILT FENCE

**GENERAL NOTES:**

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTO COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

**RALEIGH RECLAMATION, LLC**  
D.B. 15746, PG. 2646  
B.M. 2014, PG. 627 ~ TRACT 1  
PIN 0751.03-11-3934

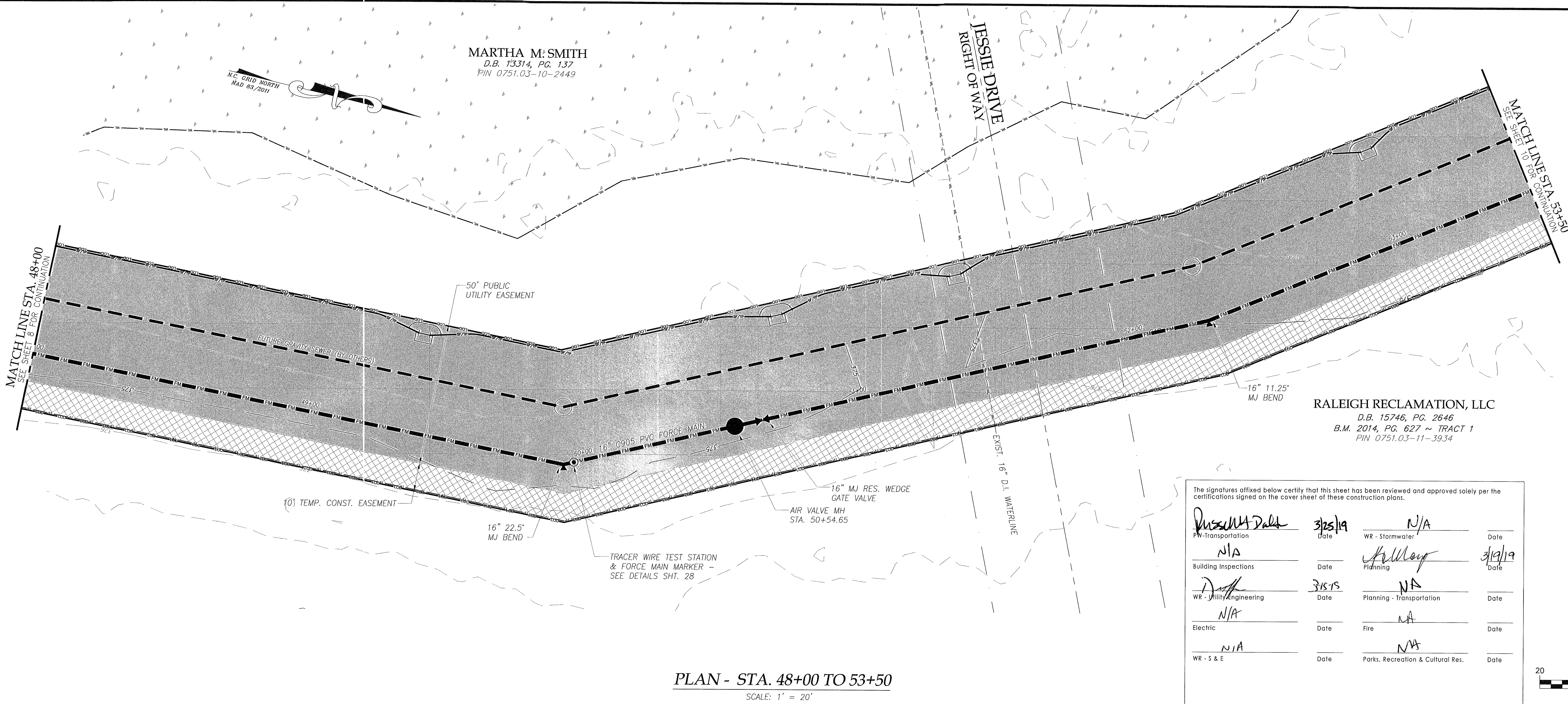
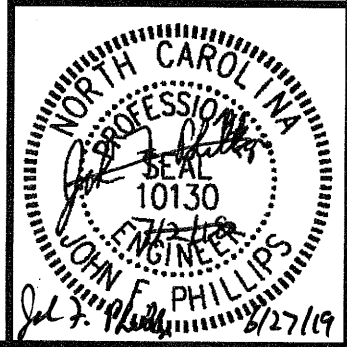
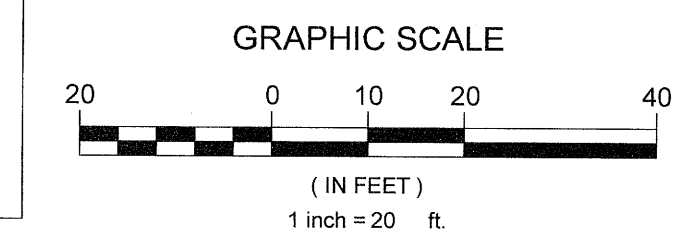
**Issued for Bid Only**

**EXISTING UTILITIES NOTE:**

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

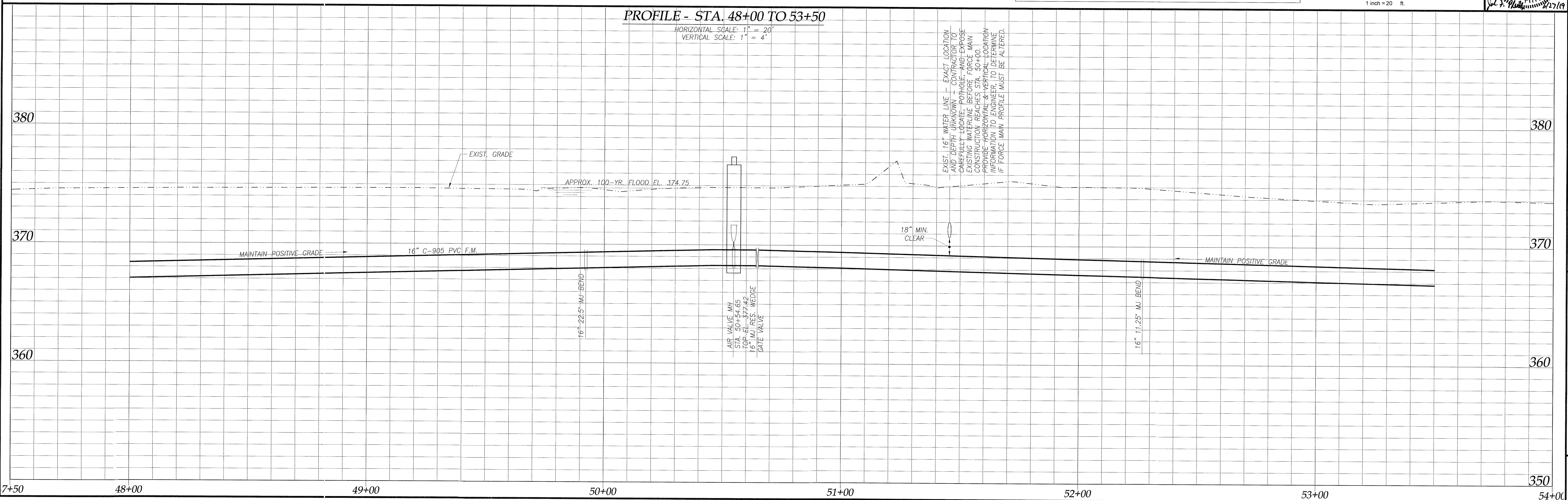
<i>Russell Dalt</i> PW-Transportation Date: 3/25/19	N/A WR - Stormwater Date:
N/A Building Inspections Date:	<i>Gallego</i> Planning Date: 3/19/19
<i>Dalt</i> WR - Utility Engineering Date: 3/25/19	N/A Planning - Transportation Date:
N/A Electric Date:	N/A Fire Date:
N/A WR - S & E Date:	N/A Parks, Recreation & Cultural Res. Date:



**PLAN - STA. 48+00 TO 53+50**  
SCALE: 1' = 20'

**PROFILE - STA. 48+00 TO 53+50**

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 4'



EXIST. 16" WATER LINE - EXACT LOCATION UNKNOWN. CONTRACTOR TO CAREFULLY LOCATE AND MARK BEFORE CONSTRUCTION REACHES STA. 50+00. PROVIDE HORIZONTAL & VERTICAL LOCATION INFORMATION TO ENGINEER, TO DETERMINE IF FORCE MAIN PROFILE MUST BE ALTERED.

DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMS  
 REVISIONS:  
 DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA  
 PLAN AND PROFILE -  
 STA. 48+00 TO 53+50 - CONTRACT 2  
 SHEET 9 OF 33



**LEGEND**

- FM — FM — PROPOSED 16" C905 PVC FORCE MAIN
- --- LIMITS OF DISTURBANCE & CLEARING
- --- LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- TP --- TREE PROTECTION FENCE
- TP --- TREE PROTECTION/SILT FENCE
- ++++ SILT FENCE

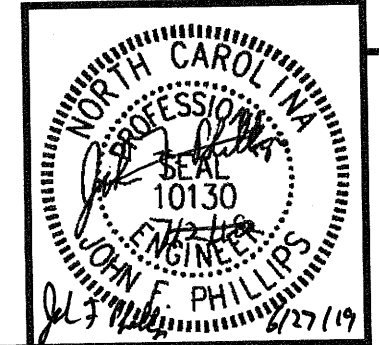
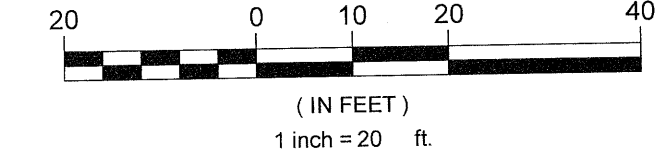
**GENERAL NOTES:**

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTIVE COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

**EXISTING UTILITIES NOTE:**

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

**GRAPHIC SCALE**



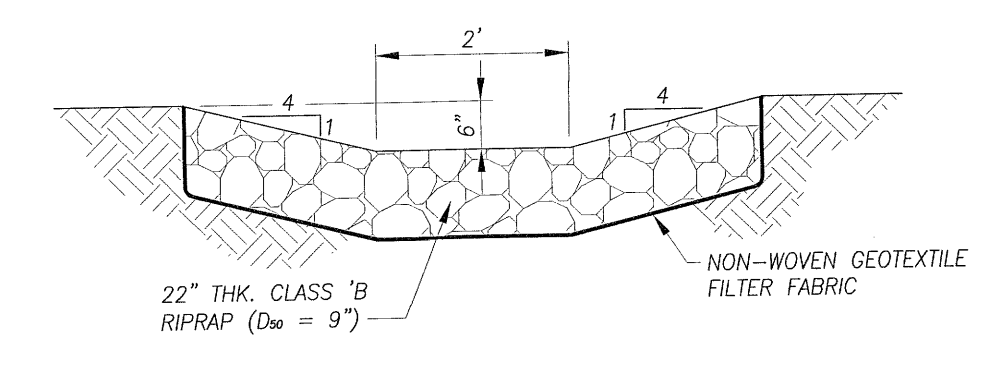
RALEIGH RECLAMATION, LLC  
D.B. 15746, PG. 2646  
B.M. 2014, PG. 627 ~ TRACT 1  
PIN 0751.03-11-3934

RALEIGH RECLAMATION, LLC  
D.B. 15746, PG. 2646  
B.M. 2014, PG. 627 ~ TRACT 1  
PIN 0751.03-11-3934

CONSTRUCT RIPRAP LINED SWALE ACROSS EASEMENT TO CONVEY DISCHARGE FROM EXISTING STORMWATER BMP. RIPRAP TO BE 22" THICK CLASS 'B'. SEE DETAIL THIS SHEET

MATCH LINE STA. 53+50  
SEE SHEET 9 FOR CONTINUATION

MATCH LINE STA. 59+00  
SEE SHEET 11 FOR CONTINUATION



**STORMWATER BMP DISCHARGE SWALE DETAIL**  
NO SCALE

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

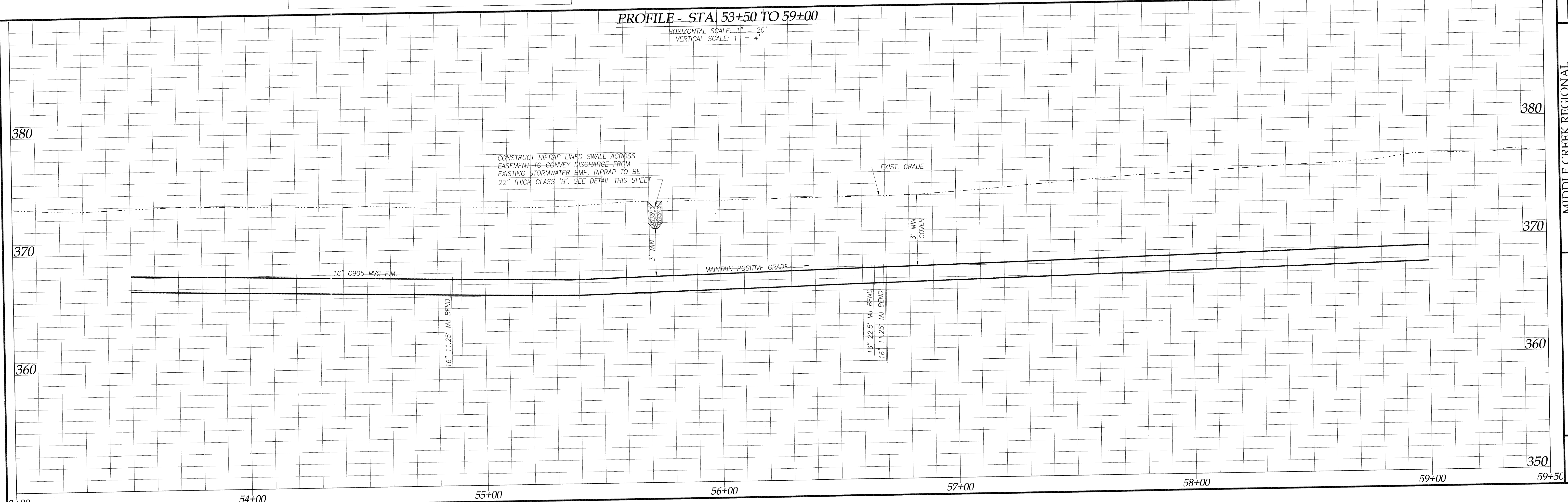
N/A	Date	WR - Stormwater	N/A	Date
PW-Transportation		Planning	<i>[Signature]</i>	3/19/19
N/A	Date	Planning - Transportation	N/A	Date
Building Inspections		Fire	N/A	Date
WR - Utility Engineering	3/15/19	Parks, Recreation & Cultural Res.	N/A	Date
N/A	Date			
Electric				
WR - S & E				

**PLAN - STA. 53+50 TO 59+00**

SCALE: 1" = 20'

**PROFILE - STA. 53+50 TO 59+00**

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 4'



DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMSS  
 REVISIONS:  
 DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
 D&P  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 NEW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA  
 PLAN AND PROFILE -  
 STA. 53+50 TO 59+00 - CONTRACT 2  
 SHEET 10 OF 33



**EAGLE ROCK CONCRETE, LLC**  
 D.B. 15069, PG. 1  
 B.M. 2013, PG. 1243 ~ TRACT 1  
 PIN 0751.03-02-9412  
 TEMP. STONE CHECK DAM

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

NA	Date	NA	Date
PW-Transportation		WR - Stormwater	
NA		Planning	3/19/19
Building Inspections		NA	
WR - Utility Engineering	3/15/19	Planning - Transportation	
NA		Fire	
Electric		NA	
WR - S & E		Parks, Recreation & Cultural Res.	

**LEGEND**

- FM FM PROPOSED 16" C905 PVC FORCE MAIN
- --- LIMITS OF DISTURBANCE & CLEARING
- --- LIMITS OF DELINEATED WETLANDS
- --- EXISTING STORM SEWER
- --- TREE PROTECTION FENCE
- --- TREE PROTECTION/SILT FENCE
- --- SILT FENCE

**GENERAL NOTES:**

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTIVE COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

**Issued for Bid Only**

**EXISTING UTILITIES NOTE:**

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

**RALEIGH RECLAMATION, LLC**  
 D.B. 15246, PG. 2646  
 B.M. 2014, PG. 627 ~ TRACT 1  
 PIN 0751.03-11-3934

INSTALL FORCE MAIN ACROSS CHANNEL BY OPEN CUT. STABILIZE STREAM CHANNEL WITH 22" THICKNESS OF CLASS 'B' RIPRAP. TOP OF RIPRAP TO BE SET EQUAL TO PRE-CONSTRUCTION STREAM-BED ELEVATION.

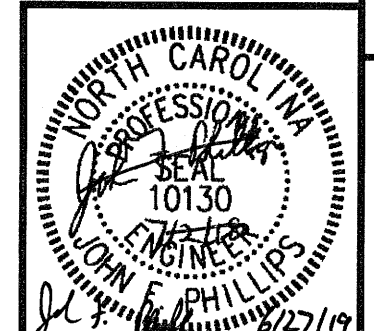
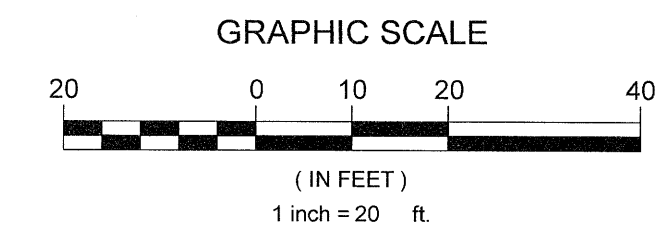
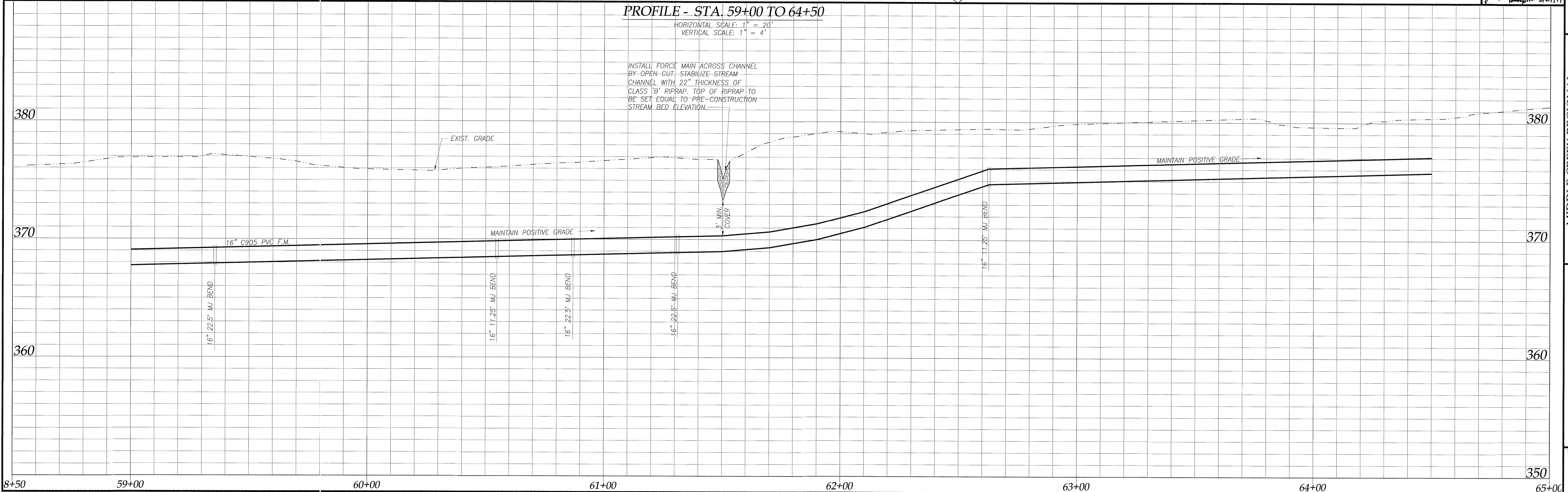
**PLAN - STA. 59+00 TO 64+50**

SCALE: 1" = 20'

**PROFILE - STA. 59+00 TO 64+50**

HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 4'

INSTALL FORCE MAIN ACROSS CHANNEL BY OPEN CUT. STABILIZE STREAM CHANNEL WITH 22" THICKNESS OF CLASS 'B' RIPRAP. TOP OF RIPRAP TO BE SET EQUAL TO PRE-CONSTRUCTION STREAM-BED ELEVATION.



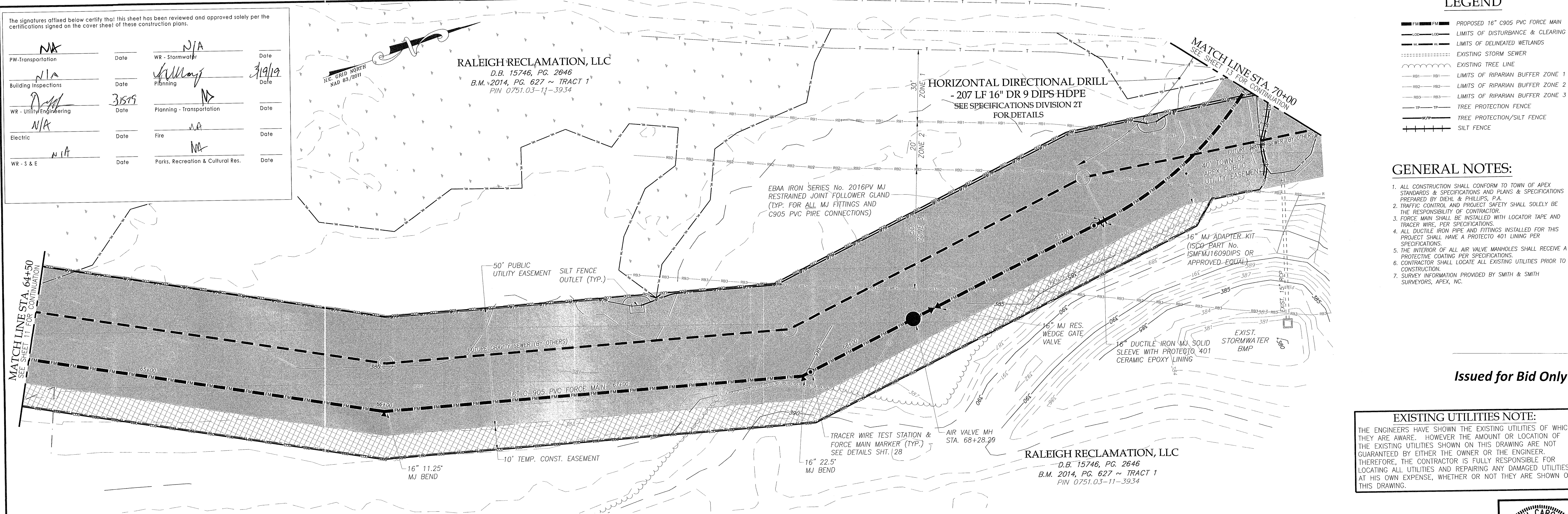
DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMSS  
 PROJECT: MIDDLE CREEK REGIONAL PUMP STATION, FORCE MAIN & INTERCEPTOR  
 STA. 59+00 TO 64+50 - CONTRACT 2  
 SHEET 11 OF 33  
**DIEHL & PHILLIPS, P.A.**  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
**D&P**  
 MIDDLE CREEK REGIONAL PUMP STATION, FORCE MAIN & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA



The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

PW-Transportation	Date	WR - Stormwater	Date
N/A		N/A	
Building Inspections	Date	Planning	Date
N/A		N/A	
WR - Utility Engineering	Date	Planning - Transportation	Date
N/A	3/15/19	N/A	
Electric	Date	Fire	Date
N/A		N/A	
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date
N/A		N/A	

**RALEIGH RECLAMATION, LLC**  
 D.B. 15746, PG. 2646  
 B.M. 2014, PG. 627 ~ TRACT 1  
 PIN 0751.03-11-3934



**LEGEND**

- FM — FM — PROPOSED 16" C905 PVC FORCE MAIN
- LDC --- LDC --- LIMITS OF DISTURBANCE & CLEARING
- ML --- ML --- LIMITS OF DELINEATED WETLANDS
- ES ----- EXISTING STORM SEWER
- ETL --- ETL --- EXISTING TREE LINE
- RBZ1 --- RBZ1 --- LIMITS OF RIPARIAN BUFFER ZONE 1
- RBZ2 --- RBZ2 --- LIMITS OF RIPARIAN BUFFER ZONE 2
- RBZ3 --- RBZ3 --- LIMITS OF RIPARIAN BUFFER ZONE 3
- TP --- TP --- TREE PROTECTION FENCE
- TPF --- TPF --- TREE PROTECTION/SILT FENCE
- SF --- SF --- SILT FENCE

**GENERAL NOTES:**

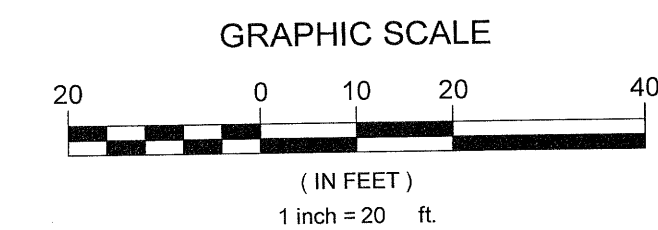
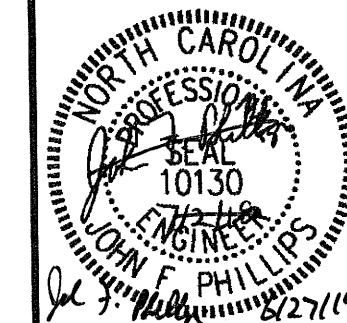
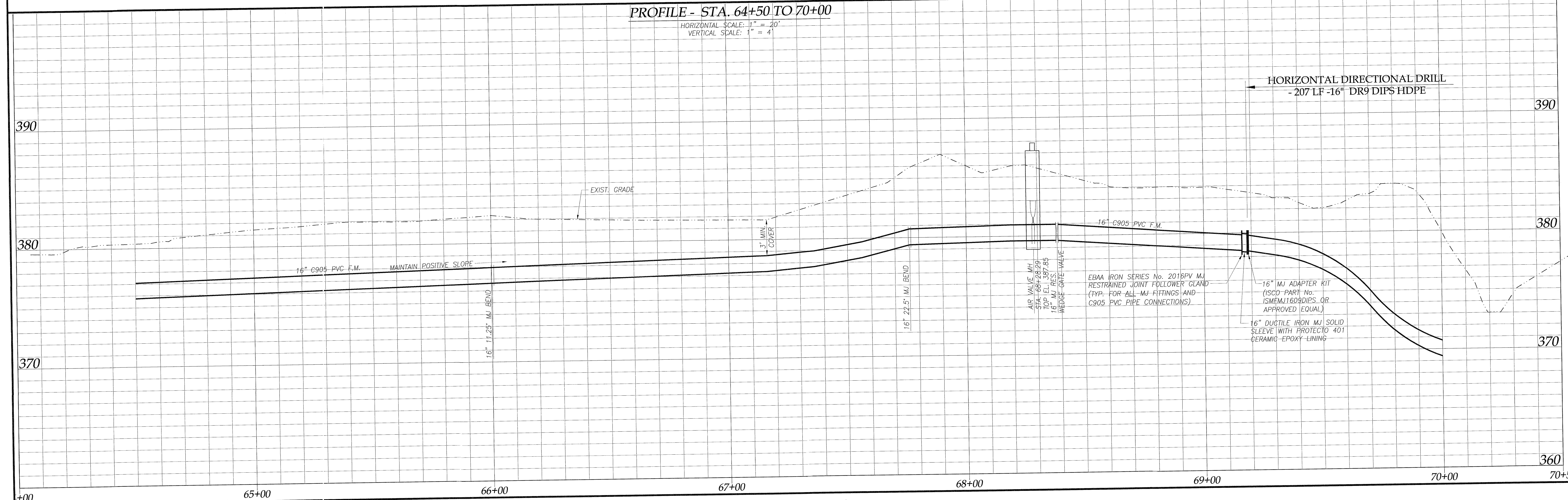
1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTO COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

**EXISTING UTILITIES NOTE:**

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

**PLAN - STA. 64+50 TO 70+00**  
 SCALE: 1" = 20'

**PROFILE - STA. 64+50 TO 70+00**  
 HORIZONTAL SCALE: 1" = 20'  
 VERTICAL SCALE: 1" = 4'



RESUB: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMS  
 REVISIONS:  
**DIEHL & PHILLIPS, P.A.**  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
**D&P**  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MEW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA  
 PLAN AND PROFILE -  
 STA. 64+50 TO 70+00 - CONTRACT 2  
 SHEET 12 OF 33



**LEGEND**

- FM - PROPOSED 16" C905 PVC FORCE MAIN
- LD - LIMITS OF DISTURBANCE & CLEARING
- LA - LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- EXISTING TREE LINE
- EXISTING SAN. SEWER
- EXISTING WATERMAIN
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- TREE PROTECTION FENCE
- SILT FENCE

**GENERAL NOTES:**

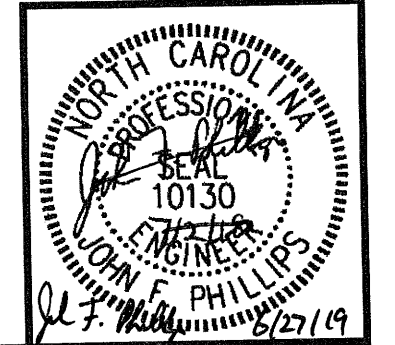
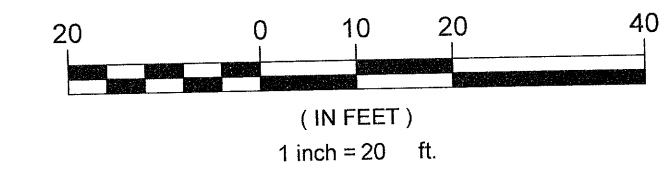
1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTIVE COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

**Issued for Bid Only**

**EXISTING UTILITIES NOTE:**

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

**GRAPHIC SCALE**



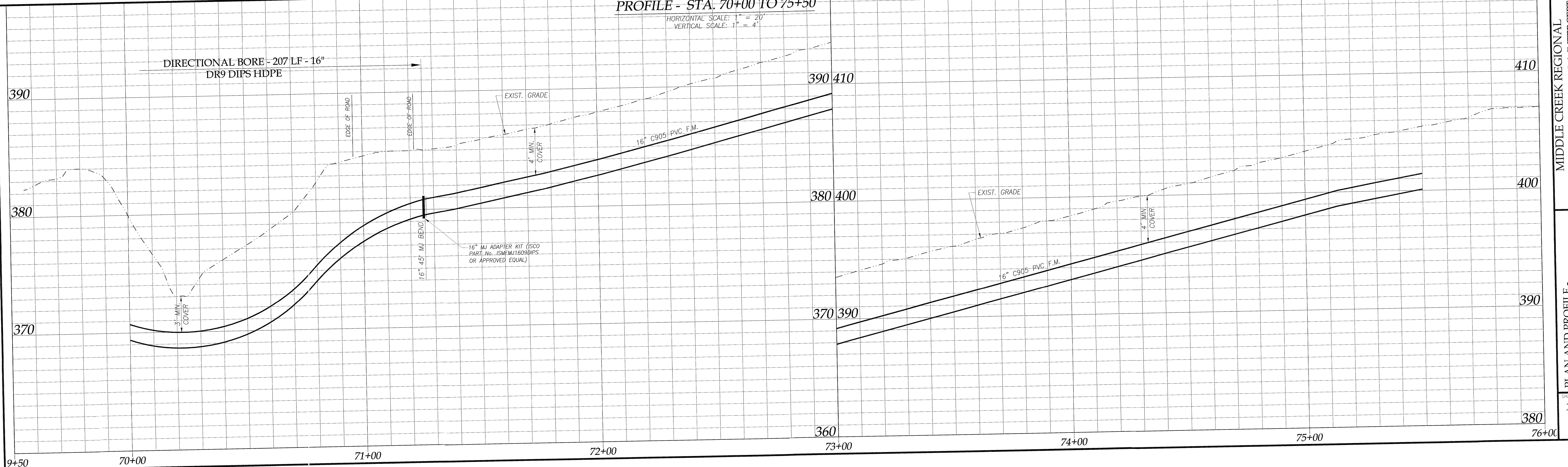
**RALEIGH RECLAMATION, LLC**  
D.B. 15746, PG. 2646  
B.M. 2014, PG. 627 - TRACT 1  
PIN 0751.03-11-3934

**EAGLE ROCK CONCRETE, LLC**  
D.B. 15069, PG. 1  
B.M. 2013, PG. 1243 - TRACT 1  
PIN 0751.03-02-9412

**JACK 1, LLC**  
D.B. 16969, PG. 2028  
PIN: 0751137742

**PLAN - STA. 70+00 TO 75+50**  
SCALE: 1" = 20'

**PROFILE - STA. 70+00 TO 75+50**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 4'



DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMSS  
 DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
 D&P  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA  
 PLAN AND PROFILE -  
 STA. 70+00 TO 75+50 - CONTRACT 2  
 SHEET 13 OF 33



EAGLE ROCK CONCRETE, LLC  
D.B. 15069, PG. 1  
PIN 0751.03-02-9412

DIXIE PIPE LINE COMPANY  
D.B. 1936, PG. 328  
B.M. 1970, PG. 106  
PIN 0741.04-92-9413

JACK I, LLC  
D.B. 16969, PG. 2028  
PIN: 0751137742

JAMES STEPHEN SMITH  
D.B. 14610, PG. 2227  
PIN 0751.03-03-3230

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

<i>[Signature]</i> PW-Transportation Date: 3/25/19	<i>[Signature]</i> WR - Stormwater Date: N/A
<i>[Signature]</i> Building Inspections Date: N/A	<i>[Signature]</i> Planning Date: 3/19/19
<i>[Signature]</i> WR - Utility Engineering Date: 3-15-19	<i>[Signature]</i> Planning - Transportation Date: N/A
<i>[Signature]</i> Electric Date: N/A	<i>[Signature]</i> Fire Date: N/A
<i>[Signature]</i> WR - S & E Date: N/A	<i>[Signature]</i> Parks, Recreation & Cultural Res. Date: N/A

LEGEND

- FM — FM — PROPOSED 16" C905 PVC FORCE MAIN
- L — L — LIMITS OF DISTURBANCE & CLEARING
- WL — WL — LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- EXISTING TREE LINE
- EXISTING SAN. SEWER
- EXISTING WATERMAIN
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- TREE PROTECTION FENCE
- TREE PROTECTION/SILT FENCE
- SILT FENCE

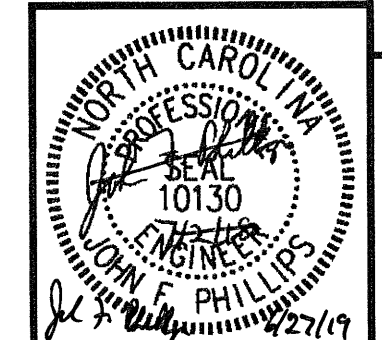
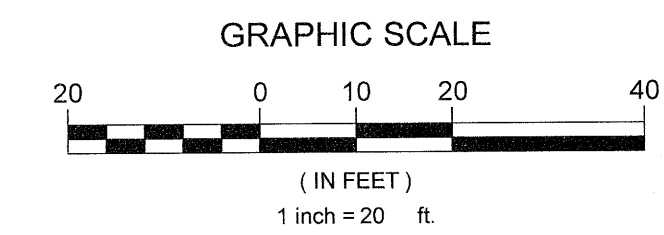
GENERAL NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTIVE COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

Issued for Bid Only

EXISTING UTILITIES NOTE:

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

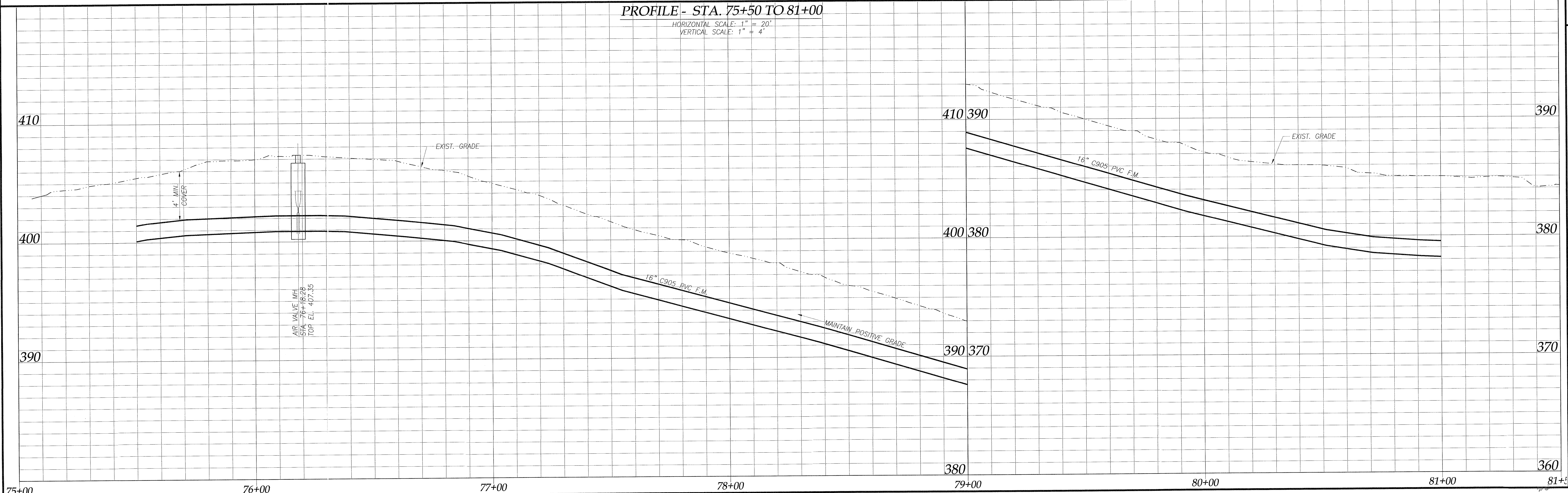


PLAN - STA. 75+50 TO 81+00

SCALE: 1" = 20'

PROFILE - STA. 75+50 TO 81+00

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 4'



DESIGN: JFP  
PROGRAM: JLB  
CHECKED: JFP  
SCALE: 1" = 20'  
FILE: MCBPS-FMSS

REVISIONS:

DIEHL & PHILLIPS, P.A.  
CONSULTING ENGINEERS - LIC. NO. C-0465  
1500 PINEY PLAINS RD., SUITE 200  
CARY, N.C. 27518 • (919) 467-9972

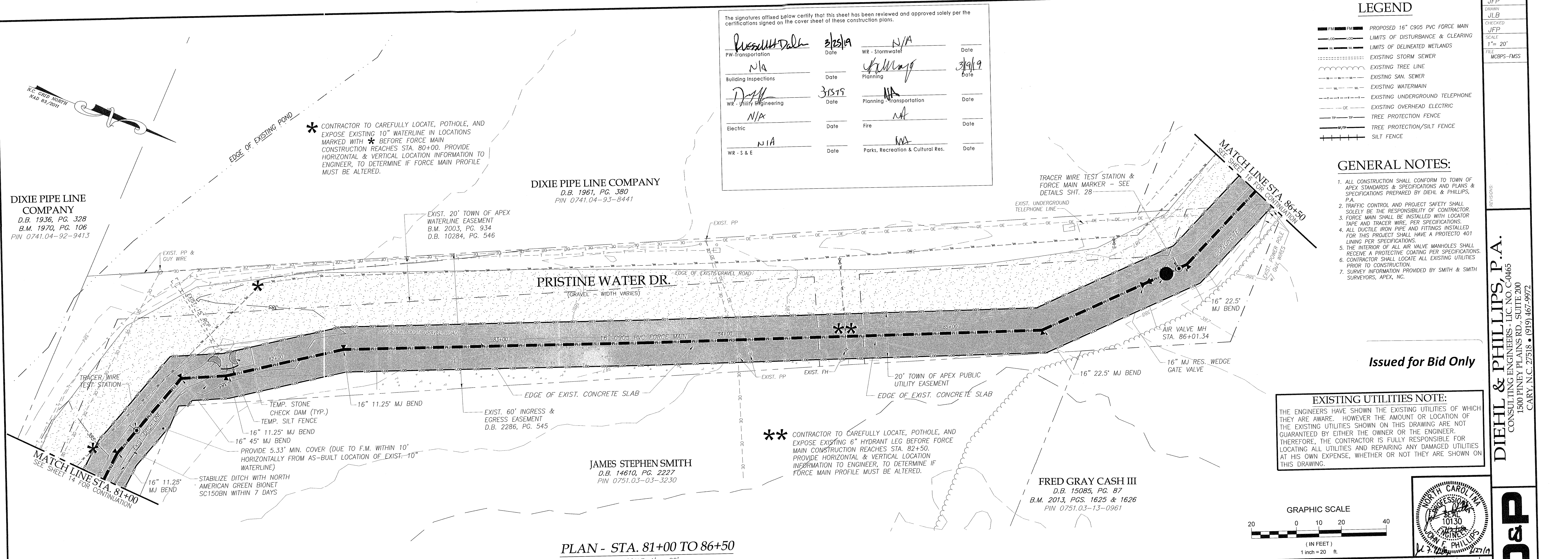
D&P

MIDDLE CREEK REGIONAL  
PUMP STATION, FORCE MAIN, & INTERCEPTOR  
MFW INVESTMENTS, LLC  
APEX, NORTH CAROLINA

PLAN AND PROFILE -  
STA. 75+50 TO 81+00 - CONTRACT 2

SHEET 14 OF 33





The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

<i>[Signature]</i> PW - Transportation Date: 3/25/19	WR - Stormwater Date: N/A	Date: 3/19/19
N/A Building Inspections Date: N/A	WR - Utility Engineering Date: 3/15/19	Planning Date: N/A
N/A Electric Date: N/A	WR - S & E Date: N/A	Fire Date: N/A
		Parks, Recreation & Cultural Res. Date: N/A

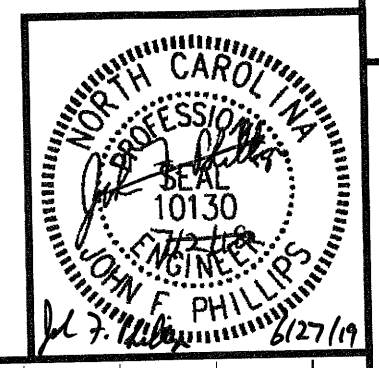
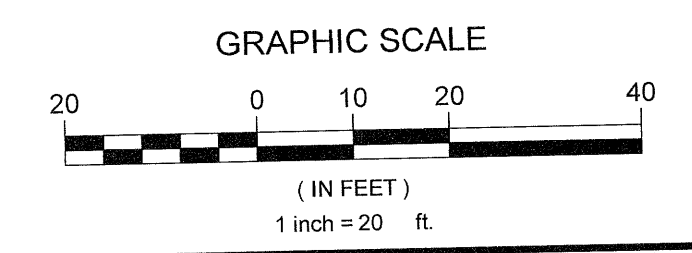
### LEGEND

- FM PROPOSED 16" C905 PVC FORCE MAIN
- LOC LIMITS OF DISTURBANCE & CLEARING
- WM LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- EXISTING TREE LINE
- EXISTING SAN. SEWER
- EXISTING WATERMAIN
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- TREE PROTECTION FENCE
- SILT FENCE

- ### GENERAL NOTES:
- ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
  - TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
  - FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
  - ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
  - THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTIVE COATING PER SPECIFICATIONS.
  - CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
  - SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

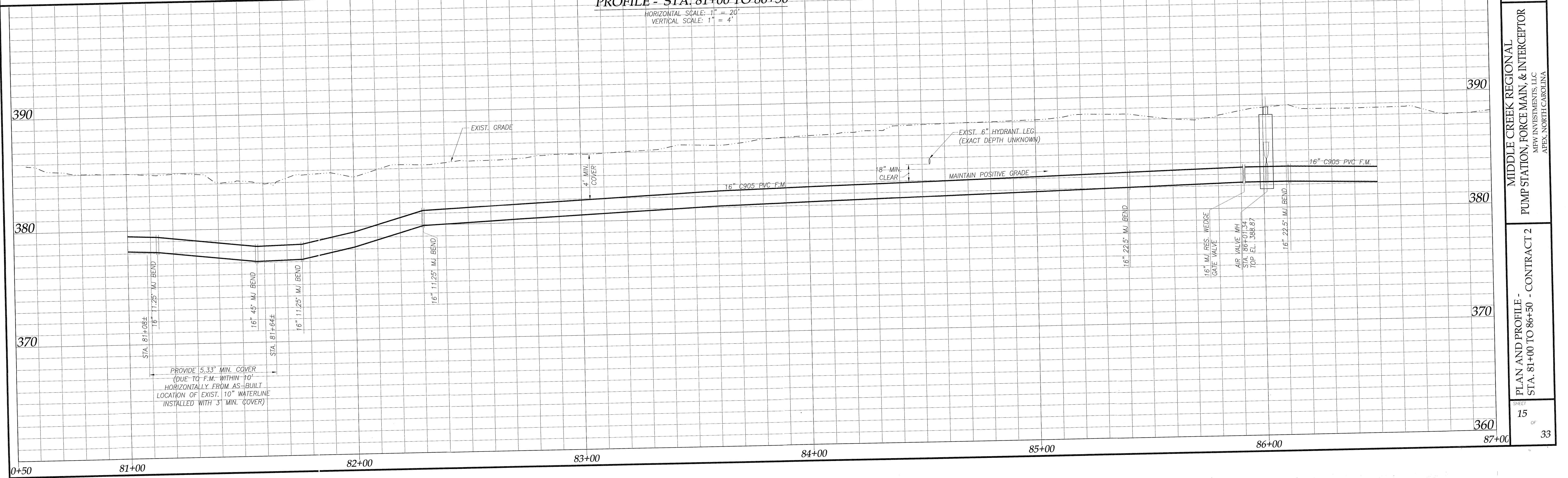
### EXISTING UTILITIES NOTE:

THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.



**PLAN - STA. 81+00 TO 86+50**  
SCALE: 1" = 20'

**PROFILE - STA. 81+00 TO 86+50**  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 4'



DIXIE PIPE LINE COMPANY  
D.B. 1936, PG. 328  
B.M. 1970, PG. 106  
PIN 0741.04-92-9413

DIXIE PIPE LINE COMPANY  
D.B. 1961, PG. 380  
PIN 0741.04-93-8441

EXIST. 20' TOWN OF APEX WATERLINE EASEMENT  
B.M. 2003, PG. 934  
D.B. 10284, PG. 546

PRISTINE WATER DR.  
(GRAVEL - WIDTH VARIES)

JAMES STEPHEN SMITH  
D.B. 14610, PG. 2227  
PIN 0751.03-03-3230

FRED GRAY CASH III  
D.B. 15085, PG. 87  
B.M. 2013, PGS. 1625 & 1626  
PIN 0751.03-13-0961

DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 TITLE: MCBPS-FMS  
 PROJECT: MIDDLE CREEK REGIONAL PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 CONTRACT: STA. 81+00 TO 86+50 - CONTRACT 2  
 SHEET: 15 OF 33  
 DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972



DIXIE PIPE LINE COMPANY  
D.B. 1961, PG. 380  
PIN 0741.04-93-8441

TOWN OF APEX  
D.B. 4145, PG. 440  
PIN 0741.04-93-5277

PRISTINE WATER DR.  
(GRAVEL - WIDTH VARIES)

HORIZONTAL DIRECTIONAL DRILL -  
235 LF 16" DR 9 DIPS HDPE  
SEE SPECIFICATIONS DIVISION 2T FOR DETAILS

DIXIE PIPE LINE COMPANY  
D.B. 1961, PG. 380  
PIN 0741.04-93-8441

APEX TOOL U.S. REAL ESTATE HOLDING, LLC  
D.B. 15329, PG. 2263, D.B. 11202, PG. 1278, B.M. 1988, PG. 586  
PIN 0741.12-95-4413

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

<i>Russell A. Dahl</i>	3/25/19	N/A	Date
PW-Transportation		WR - Stormwater	Date
N/A		Planning	3/19/19
Building Inspections		NA	Date
<i>D. Ash</i>	3-15-15	NA	Date
WR - Utility Engineering		Planning - Transportation	Date
N/A		Fire	Date
Electric		NA	Date
N/A		Parks, Recreation & Cultural Res.	Date
WR - S & E			Date

LEGEND

- FM — FM — PROPOSED 16" C905 PVC FORCE MAIN
- L — L — LIMITS OF DISTURBANCE & CLEARING
- W — W — LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- EXISTING TREE LINE
- EXISTING SAN. SEWER
- EXISTING WATERMAIN
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- TREE PROTECTION FENCE
- TREE PROTECTION/SILT FENCE
- SILT FENCE

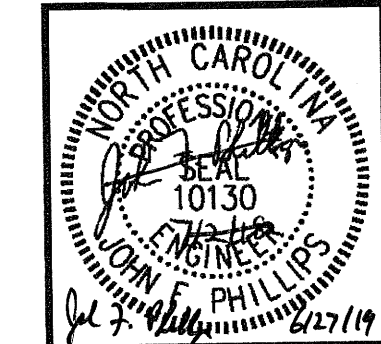
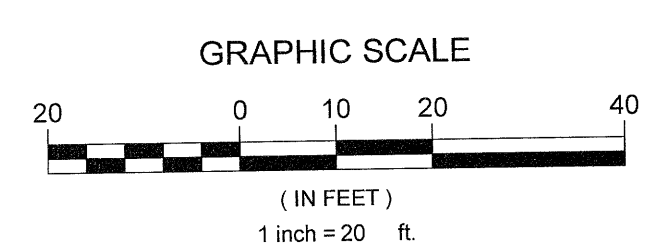
GENERAL NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES SHALL RECEIVE A PROTECTIVE COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

Issued for Bid Only

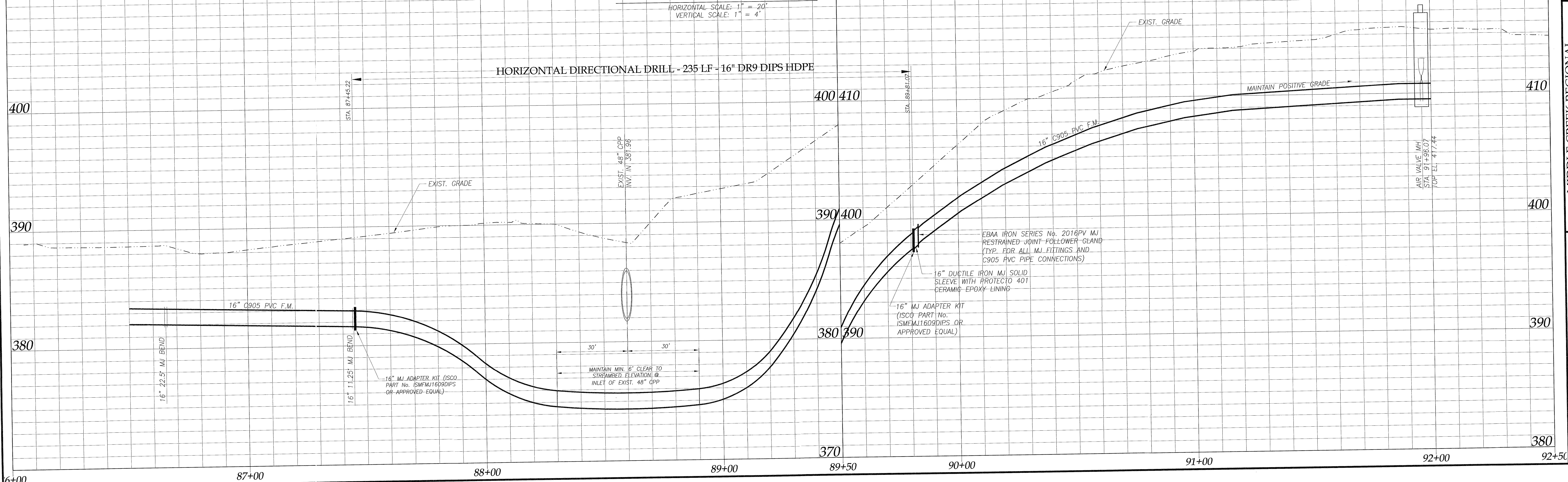
EXISTING UTILITIES NOTE:  
THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

CONTRACTOR TO COORDINATE WITH POWER COMPANY IF ANY TEMPORARY POLE SUPPORT IS REQUIRED FOR HORIZONTAL DIRECTIONAL DRILLING NEAR POWER POLE AND GUY WIRE.



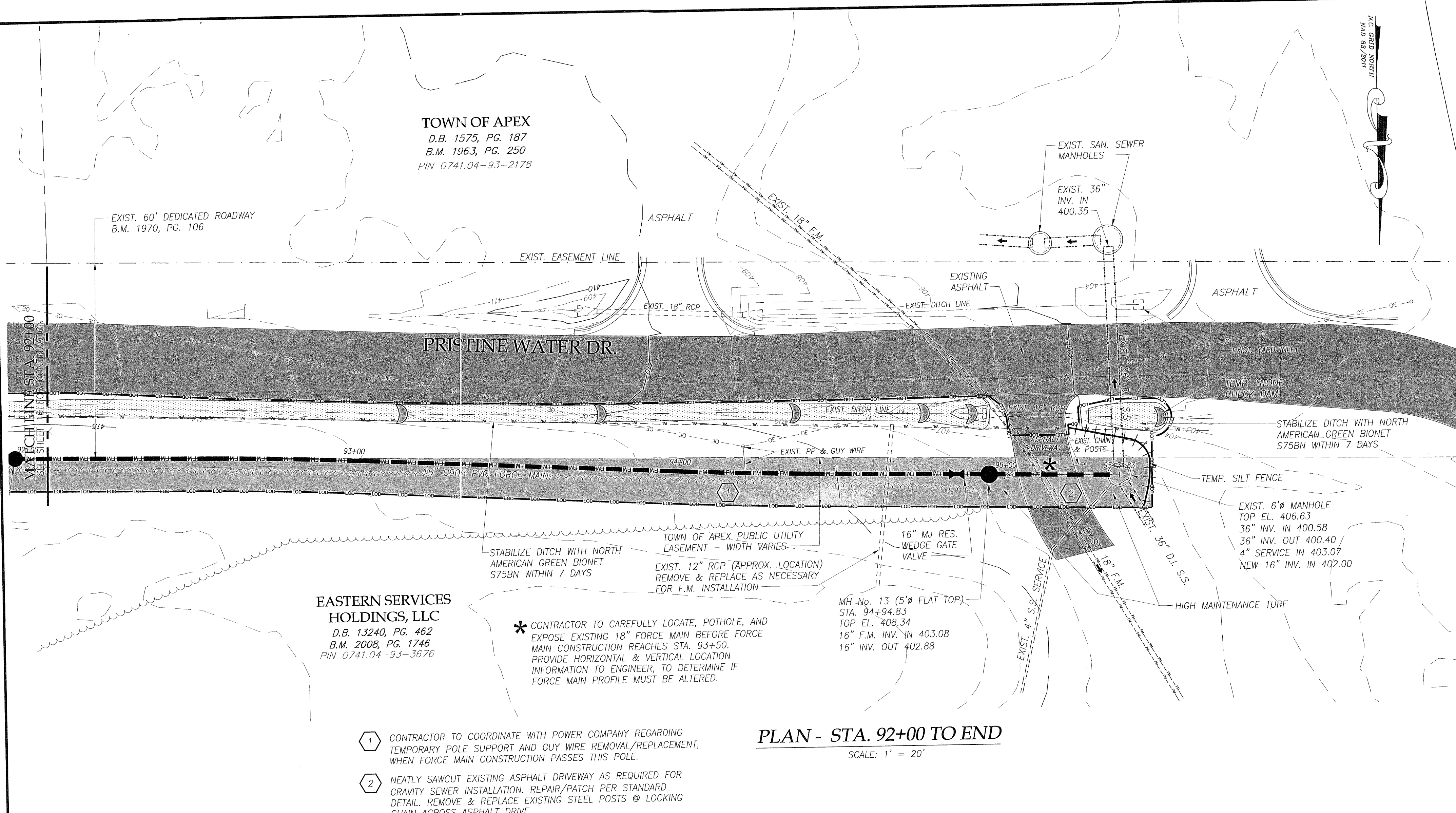
PLAN - STA. 86+50 TO 92+00  
SCALE: 1" = 20'

PROFILE - STA. 86+50 TO 92+00  
HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 4'



DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 20'  
 FILE: MCBPS-FMS  
 DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINNEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MEW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA  
 PLAN AND PROFILE -  
 STA. 86+50 TO 92+00 - CONTRACT 2  
 16 OF 33





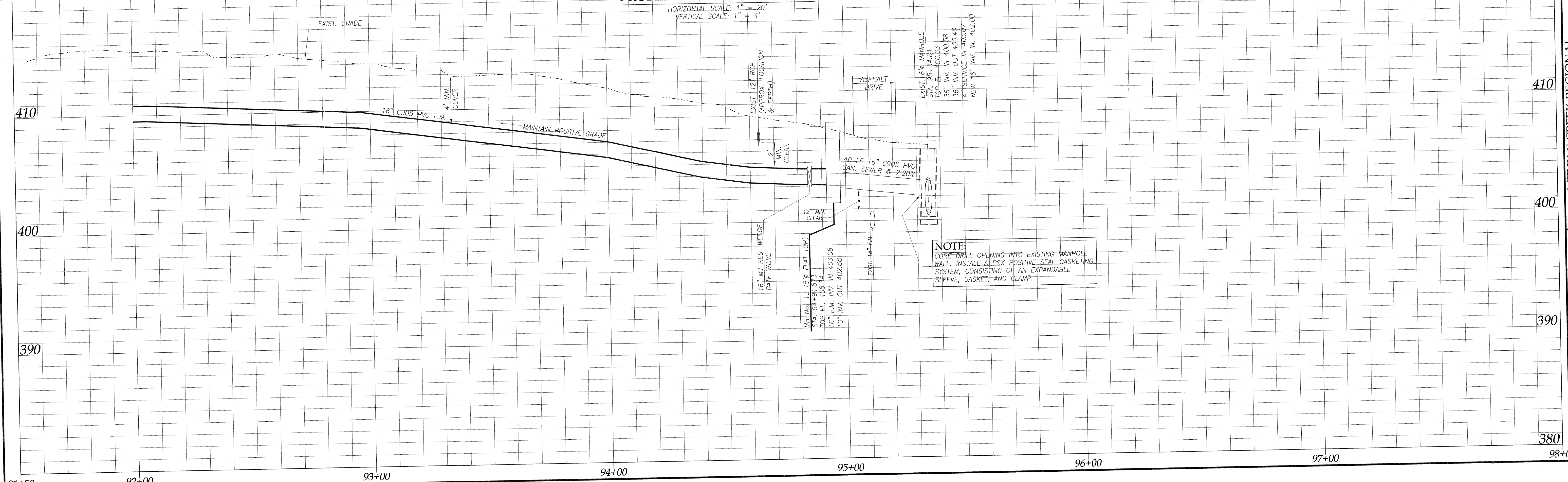
**PLAN - STA. 92+00 TO END**  
SCALE: 1" = 20'

- 1 CONTRACTOR TO COORDINATE WITH POWER COMPANY REGARDING TEMPORARY POLE SUPPORT AND GUY WIRE REMOVAL/REPLACEMENT, WHEN FORCE MAIN CONSTRUCTION PASSES THIS POLE.
- 2 NEATLY SAWCUT EXISTING ASPHALT DRIVEWAY AS REQUIRED FOR GRAVITY SEWER INSTALLATION. REPAIR/PATCH PER STANDARD DETAIL. REMOVE & REPLACE EXISTING STEEL POSTS @ LOCKING CHAIN ACROSS ASPHALT DRIVE.

\* CONTRACTOR TO CAREFULLY LOCATE, POTHOLE, AND EXPOSE EXISTING 18" FORCE MAIN BEFORE FORCE MAIN CONSTRUCTION REACHES STA. 93+50. PROVIDE HORIZONTAL & VERTICAL LOCATION INFORMATION TO ENGINEER, TO DETERMINE IF FORCE MAIN PROFILE MUST BE ALTERED.

**PROFILE - STA. 92+00 TO END**

HORIZONTAL SCALE: 1" = 20'  
VERTICAL SCALE: 1" = 4'



**NOTE:**  
CORE DRILL OPENING INTO EXISTING MANHOLE WALL. INSTALL A PSX POSITIVE SEAL GASKETING SYSTEM, CONSISTING OF AN EXPANDABLE SLEEVE, GASKET, AND CLAMP.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

<i>[Signature]</i> PW-Transportation Date: 3/23/19	<i>[Signature]</i> WR - Stormwater Date: N/A
<i>[Signature]</i> Building Inspections Date: N/A	<i>[Signature]</i> Planning Date: 3/19/19
<i>[Signature]</i> WR - Utility Engineering Date: 3/15/19	<i>[Signature]</i> Planning - Transportation Date: N/A
<i>[Signature]</i> Electric Date: N/A	<i>[Signature]</i> Fire Date: N/A
<i>[Signature]</i> WR - S & E Date: N/A	<i>[Signature]</i> Parks, Recreation & Cultural Res. Date: N/A

**LEGEND**

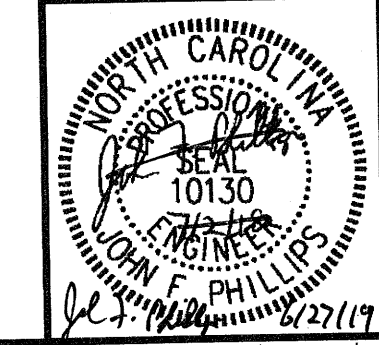
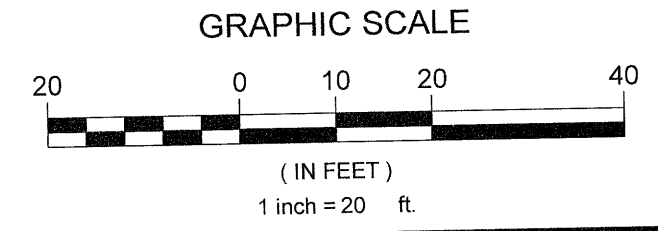
- PROPOSED 16" PVC GRAVITY SEWER
- PROPOSED 16" C905 PVC FORCE MAIN
- LIMITS OF DISTURBANCE & CLEARING
- LIMITS OF DELINEATED WETLANDS
- EXISTING STORM SEWER
- EXISTING TREE LINE
- EXISTING SAN. SEWER
- EXISTING WATERMAIN
- EXISTING UNDERGROUND TELEPHONE
- EXISTING OVERHEAD ELECTRIC
- TREE PROTECTION FENCE
- TREE PROTECTION/SILT FENCE
- SILT FENCE

**GENERAL NOTES:**

1. ALL CONSTRUCTION SHALL CONFORM TO TOWN OF APEX STANDARDS & SPECIFICATIONS AND PLANS & SPECIFICATIONS PREPARED BY DIEHL & PHILLIPS, P.A.
2. TRAFFIC CONTROL AND PROJECT SAFETY SHALL SOLELY BE THE RESPONSIBILITY OF CONTRACTOR.
3. FORCE MAIN SHALL BE INSTALLED WITH LOCATOR TAPE AND TRACER WIRE, PER SPECIFICATIONS.
4. ALL DUCTILE IRON PIPE AND FITTINGS INSTALLED FOR THIS PROJECT SHALL HAVE A PROTECTO 401 LINING PER SPECIFICATIONS.
5. THE INTERIOR OF ALL AIR VALVE MANHOLES AND MANHOLE NO. 13 SHALL RECEIVE A PROTECTIVE COATING PER SPECIFICATIONS.
6. CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. SURVEY INFORMATION PROVIDED BY SMITH & SMITH SURVEYORS, APEX, NC.

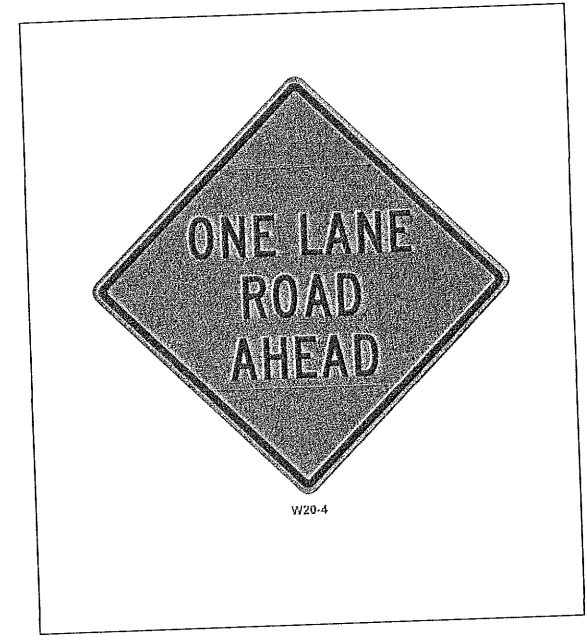
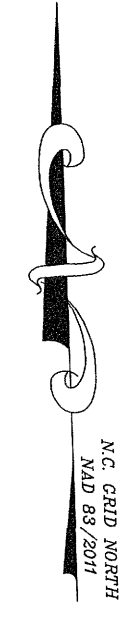
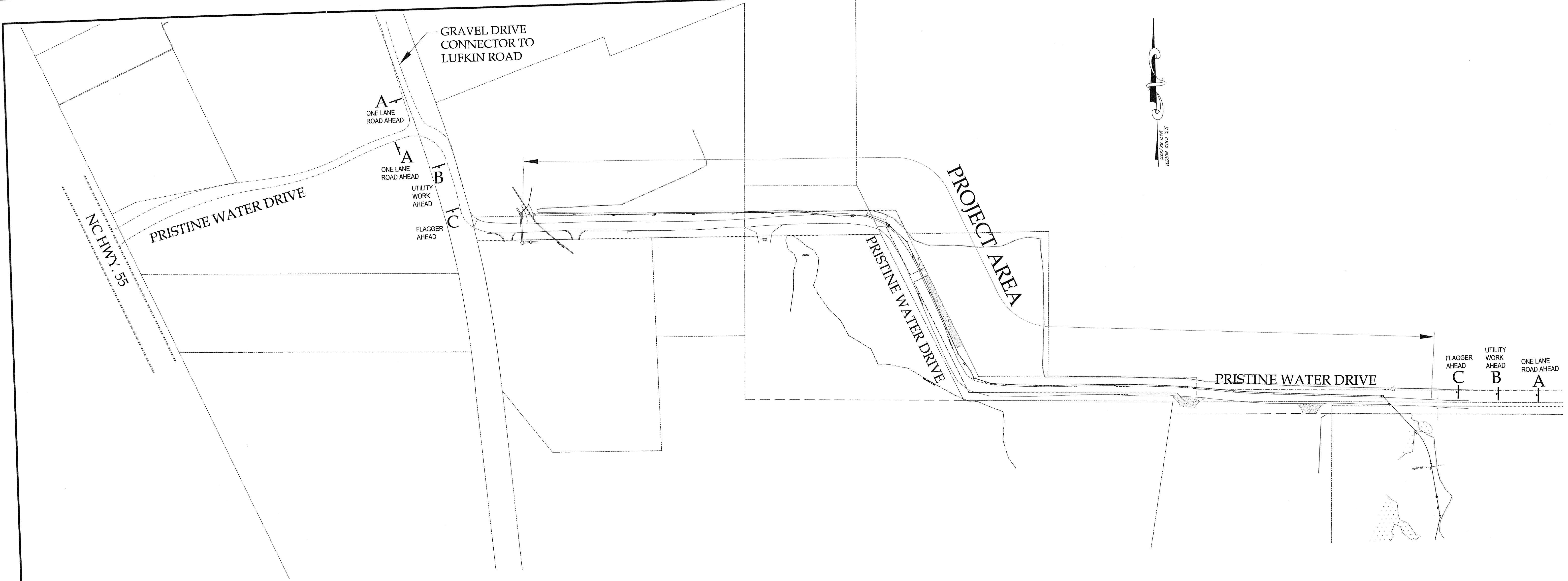
**Issued for Bid Only**

**EXISTING UTILITIES NOTE:**  
THE ENGINEERS HAVE SHOWN THE EXISTING UTILITIES OF WHICH THEY ARE AWARE. HOWEVER THE AMOUNT OR LOCATION OF THE EXISTING UTILITIES SHOWN ON THIS DRAWING ARE NOT GUARANTEED BY EITHER THE OWNER OR THE ENGINEER. THEREFORE, THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING ALL UTILITIES AND REPAIRING ANY DAMAGED UTILITIES AT HIS OWN EXPENSE, WHETHER OR NOT THEY ARE SHOWN ON THIS DRAWING.

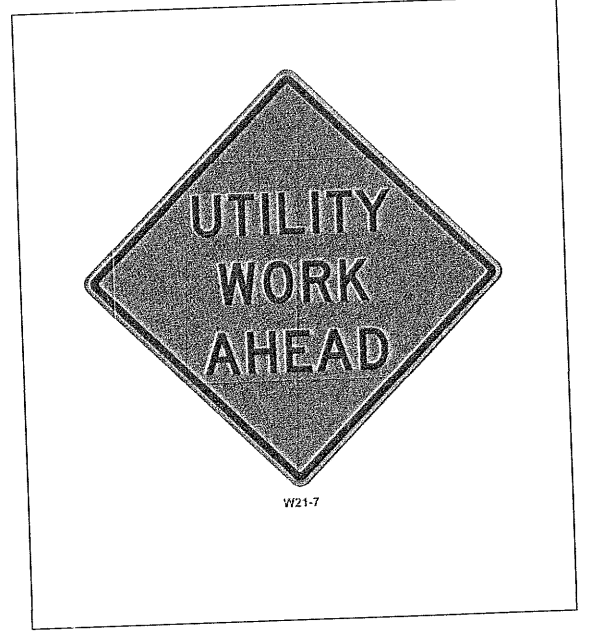


DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA  
 PLAN AND PROFILE -  
 STA. 92+00 TO END - CONTRACT 2  
 SHEET 17 OF 33





SIGN 'A'



SIGN 'B'

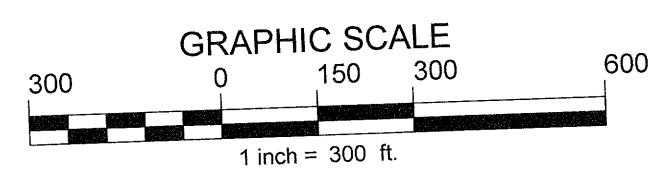


SIGN 'C'

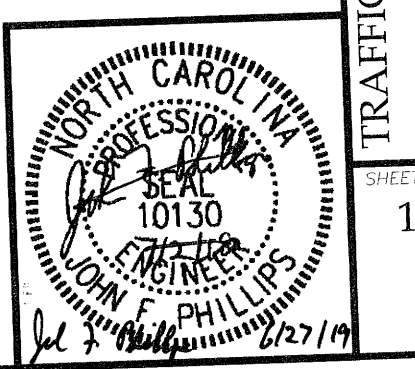
NOTE:  
 SIGN LOCATIONS WILL MOVE WITH ACTIVE  
 CONSTRUCTION ZONE.

The signatures attested below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

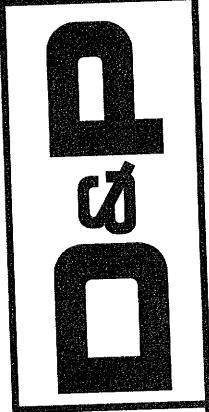
<i>[Signature]</i>	3/25/19	N/A	Date
Transportation	Date	WR - Stormwater	Date
N/A	Date	Planning	3/19/19
WR - Utility Engineering	Date	Planning - Transportation	Date
N/A	Date	Fire	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date



Issued for Bid Only



DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972



MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MFM INVESTMENTS, LLC  
 APEX, NORTH CAROLINA

TRAFFIC PLAN - CONTRACT 2

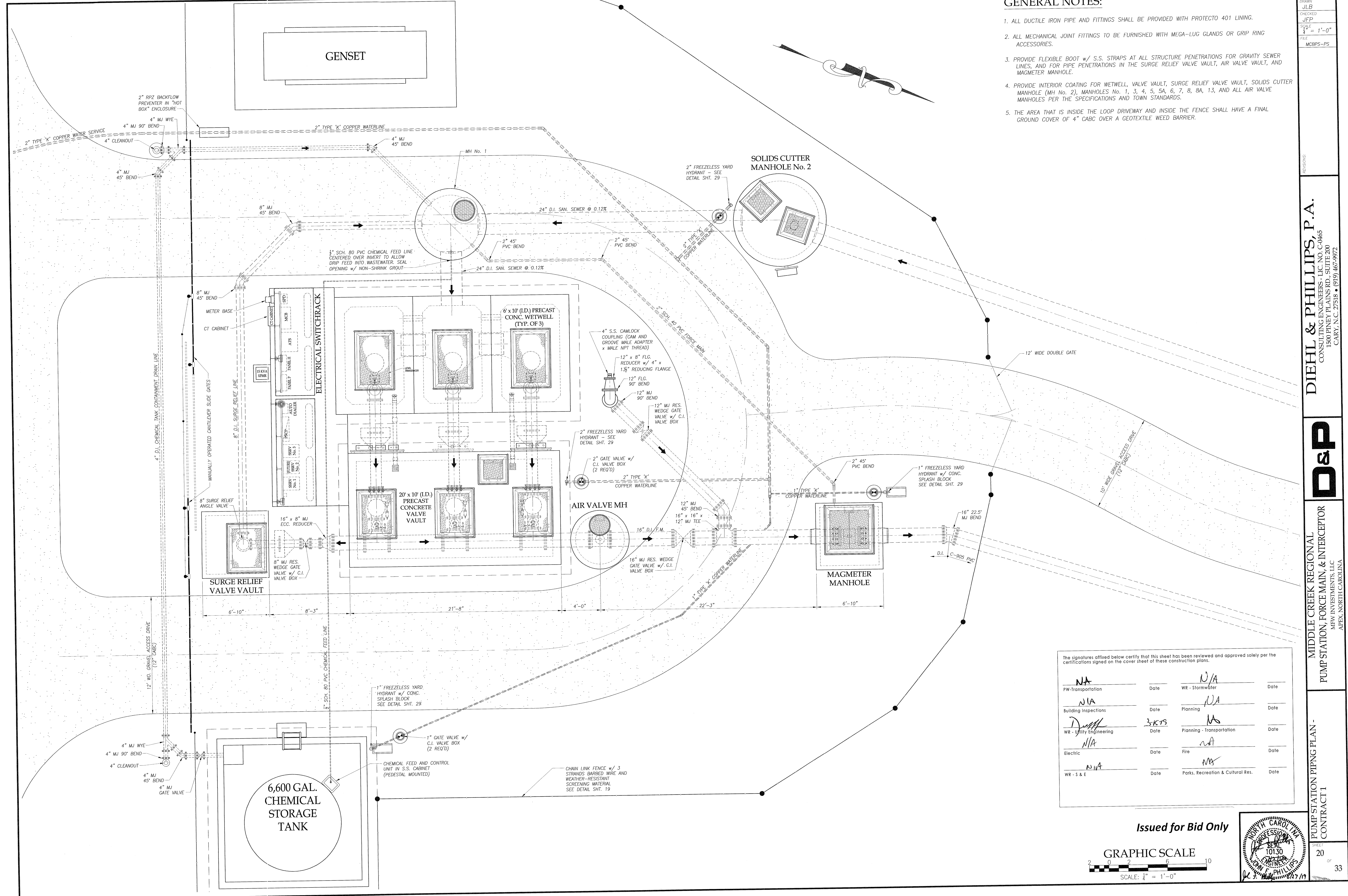






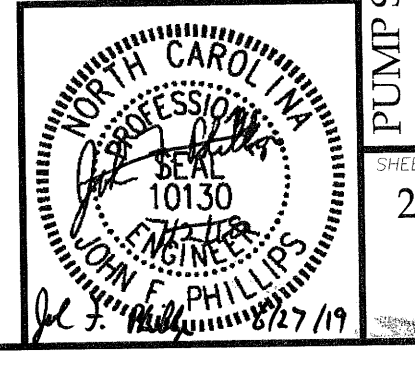
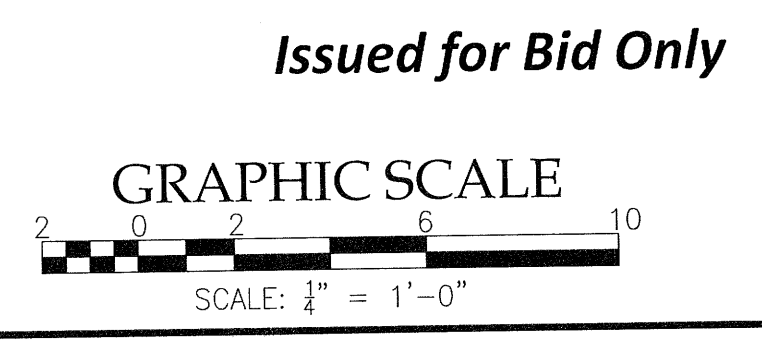
**GENERAL NOTES:**

1. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE PROVIDED WITH PROTECTO 401 LINING.
2. ALL MECHANICAL JOINT FITTINGS TO BE FURNISHED WITH MEGA-LUG GLANDS OR GRIP RING ACCESSORIES.
3. PROVIDE FLEXIBLE BOOT w/ S.S. STRAPS AT ALL STRUCTURE PENETRATIONS FOR GRAVITY SEWER LINES, AND FOR PIPE PENETRATIONS IN THE SURGE RELIEF VALVE VAULT, AIR VALVE VAULT, AND MAGMETER MANHOLE.
4. PROVIDE INTERIOR COATING FOR WETWELL, VALVE VAULT, SURGE RELIEF VALVE VAULT, SOLIDS CUTTER MANHOLE (MH No. 2), MANHOLES No. 1, 3, 4, 5, 5A, 6, 7, 8, 8A, 13, AND ALL AIR VALVE MANHOLES PER THE SPECIFICATIONS AND TOWN STANDARDS.
5. THE AREA THAT IS INSIDE THE LOOP DRIVEWAY AND INSIDE THE FENCE SHALL HAVE A FINAL GROUND COVER OF 4" CABG OVER A GEOTEXTILE WEED BARRIER.



The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

PW-Transportation	Date	WR - Stormwater	Date
Building Inspections	Date	Planning	Date
WR - Utility Engineering	Date	Planning - Transportation	Date
Electric	Date	Fire	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date



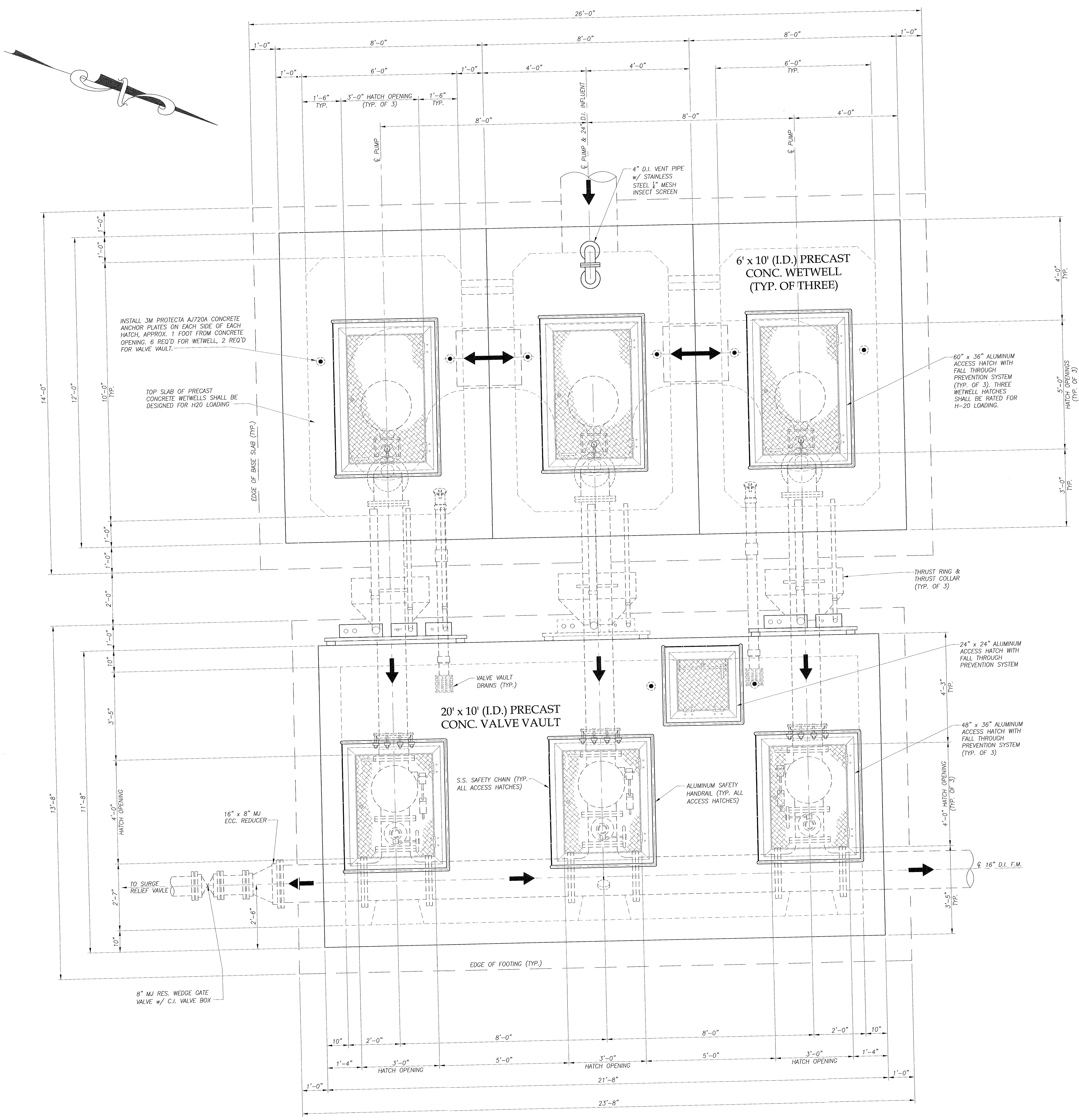
REGION: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1/4" = 1'-0"  
 FILE: MCBPS-PS

DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972

**D&P**  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MPW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA

PUMP STATION PIPING PLAN -  
 CONTRACT 1  
 20  
 33



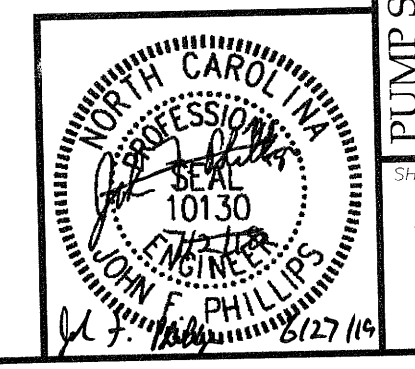
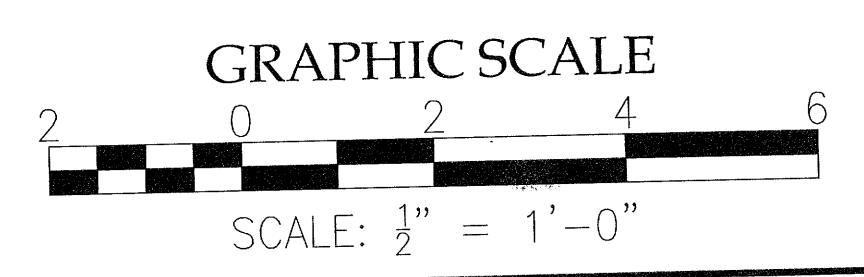


**GENERAL NOTES:**

1. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE PROVIDED WITH PROTECTO 401 LINING.
2. ALL MECHANICAL JOINT FITTINGS TO BE FURNISHED WITH MEGA-LUG GLANDS OR GRIP RING ACCESSORIES.
3. PROVIDE FLEXIBLE BOOT W/ S.S. STRAPS AT ALL STRUCTURE PENETRATIONS FOR GRAVITY SEWER LINES, AND FOR PIPE PENETRATIONS IN THE SURGE RELIEF VALVE VAULT, AIR VALVE VAULT, AND MAGMETER MANHOLE.
4. PROVIDE INTERIOR COATING FOR WETWELL, VALVE VAULT, SURGE RELIEF VALVE VAULT, SOLIDS CUTTER MANHOLE (MH No. 2), MANHOLES No. 1, 3, 4, 5, 5A, 6, 7, 8, 8A, 13, AND ALL AIR VALVE MANHOLES PER THE SPECIFICATIONS AND TOWN STANDARDS.
5. THE AREA THAT IS INSIDE THE LOOP DRIVEWAY AND INSIDE THE FENCE SHALL HAVE A FINAL GROUND COVER OF 4" CABG OVER A GEOTEXTILE WEED BARRIER.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

PW-Transportation	Date	WR - Stormwater	Date
Building Inspections	Date	Planning	Date
WR - Utility Engineering	Date	Planning - Transportation	Date
Electric	Date	Fire	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date









100-YR. FLOOD  
ELEV. 366.9

DESIGN JFP  
DRAWN JLB  
CHECKED JFP  
SCALE 1/8" = 1'-0"  
FILE MCBPS-PS

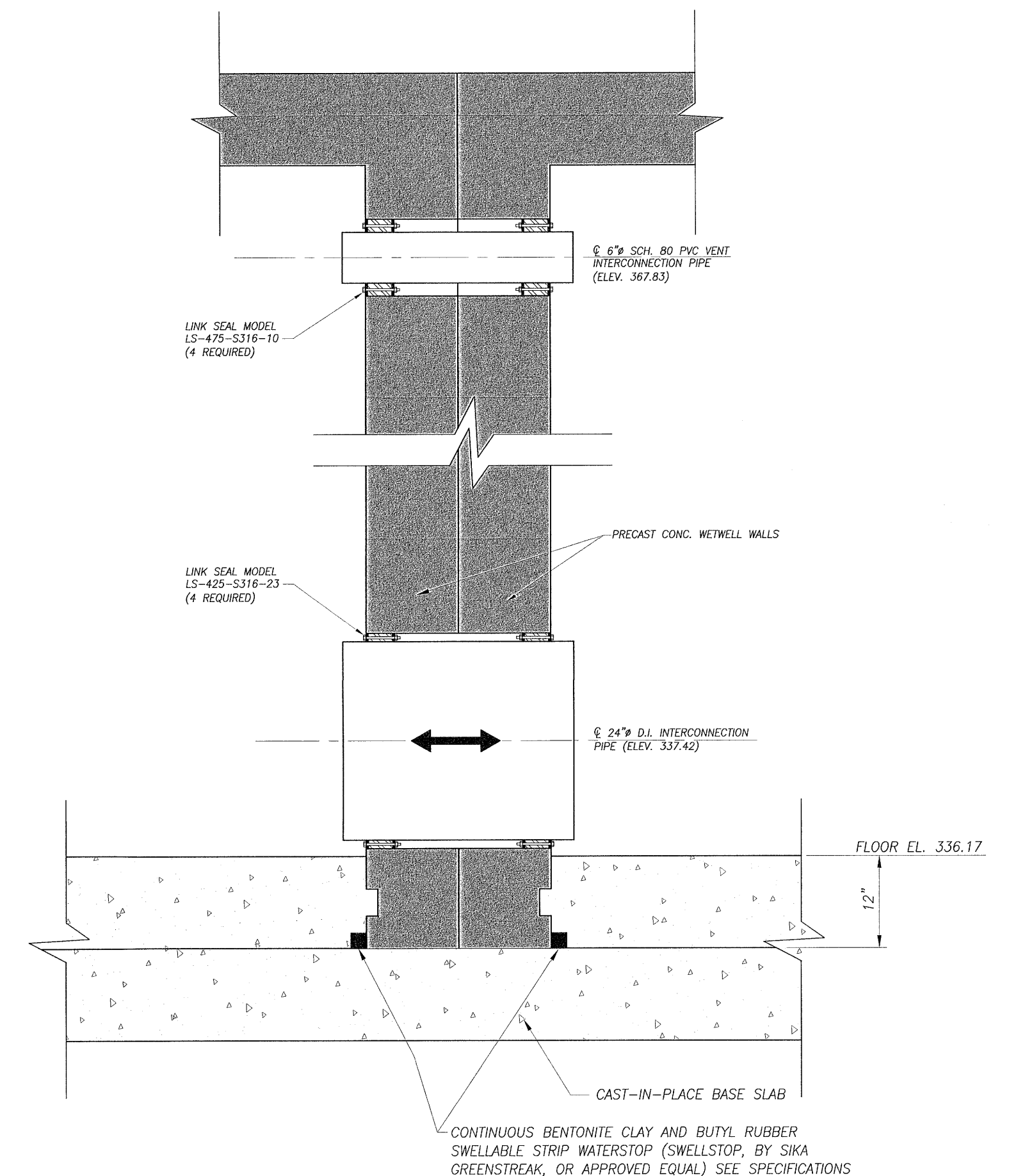
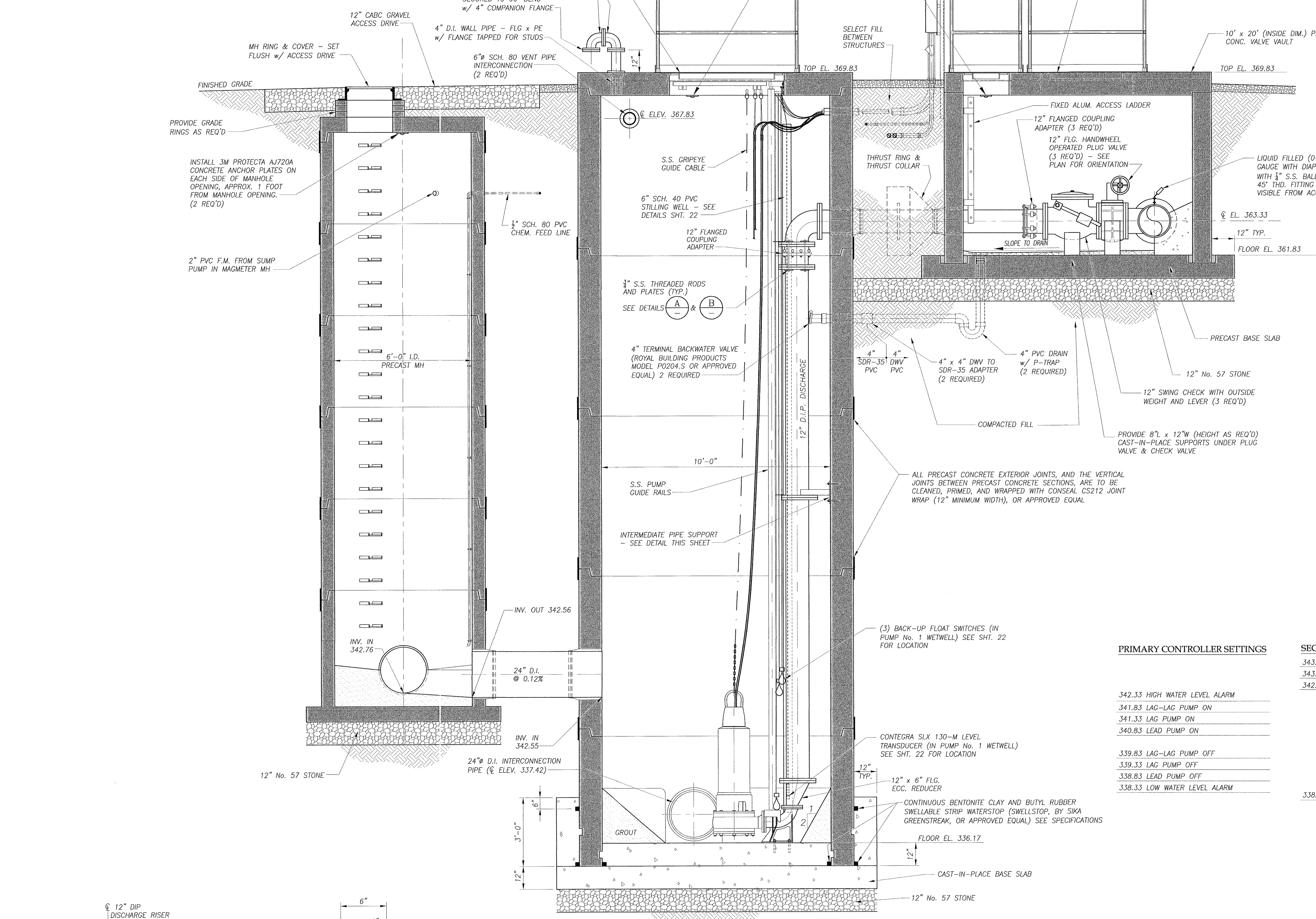
DIEHL & PHILLIPS, P.A.  
CONSULTING ENGINEERS - LIC. NO. C-0465  
1500 PINEY PLAINS RD., SUITE 200  
CARY, N.C. 27518 • (919) 467-9972

D&P

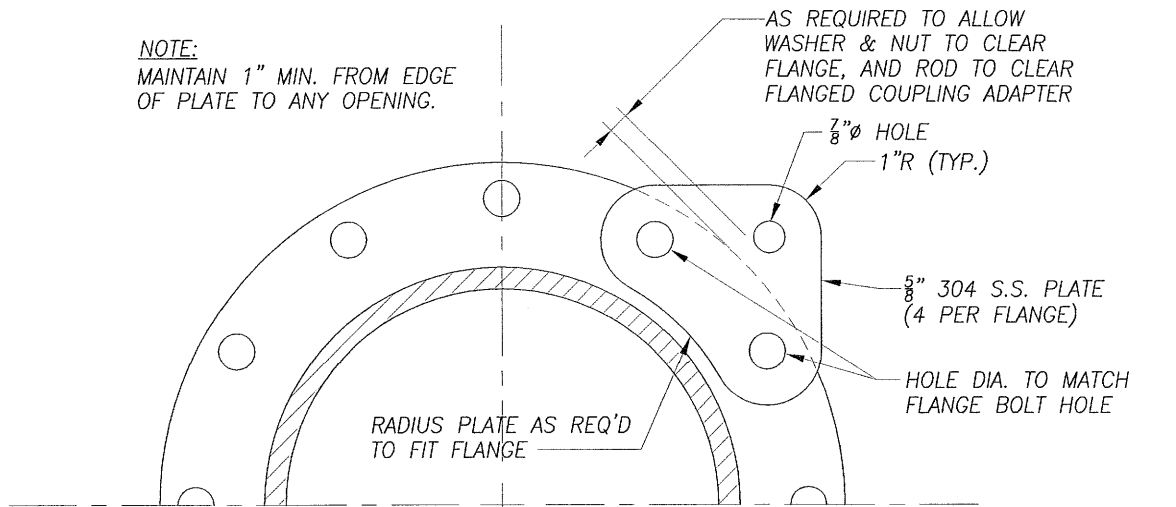
MIDDLE CREEK REGIONAL  
PUMP STATION, FORCE MAIN, & INTERCEPTOR  
NEW INVESTMENTS, LLC  
APEX, NORTH CAROLINA

PUMP STATION - SECTION  
CONTRACT 1

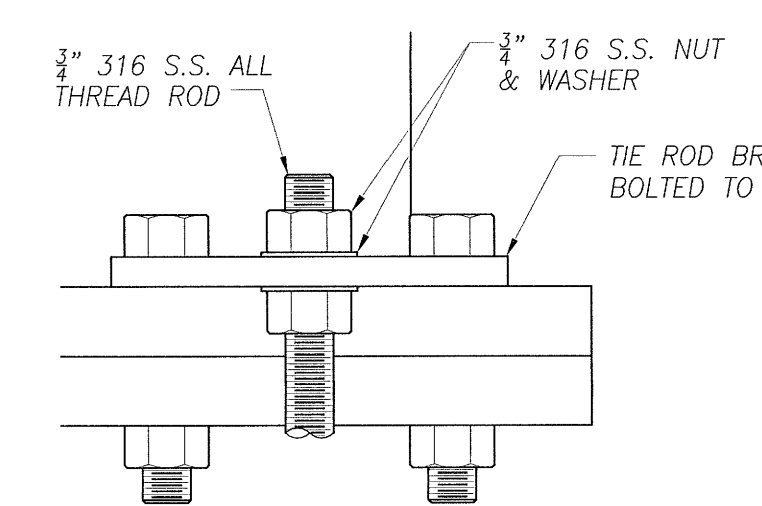
23 OF 33



INTERCONNECTION PIPE DETAIL  
SCALE: 3/8" = 1'-0"



TIE ROD BRACKET DETAIL (A)  
NO SCALE



TIE ROD DETAIL (B)  
NO SCALE

**PRIMARY CONTROLLER SETTINGS**

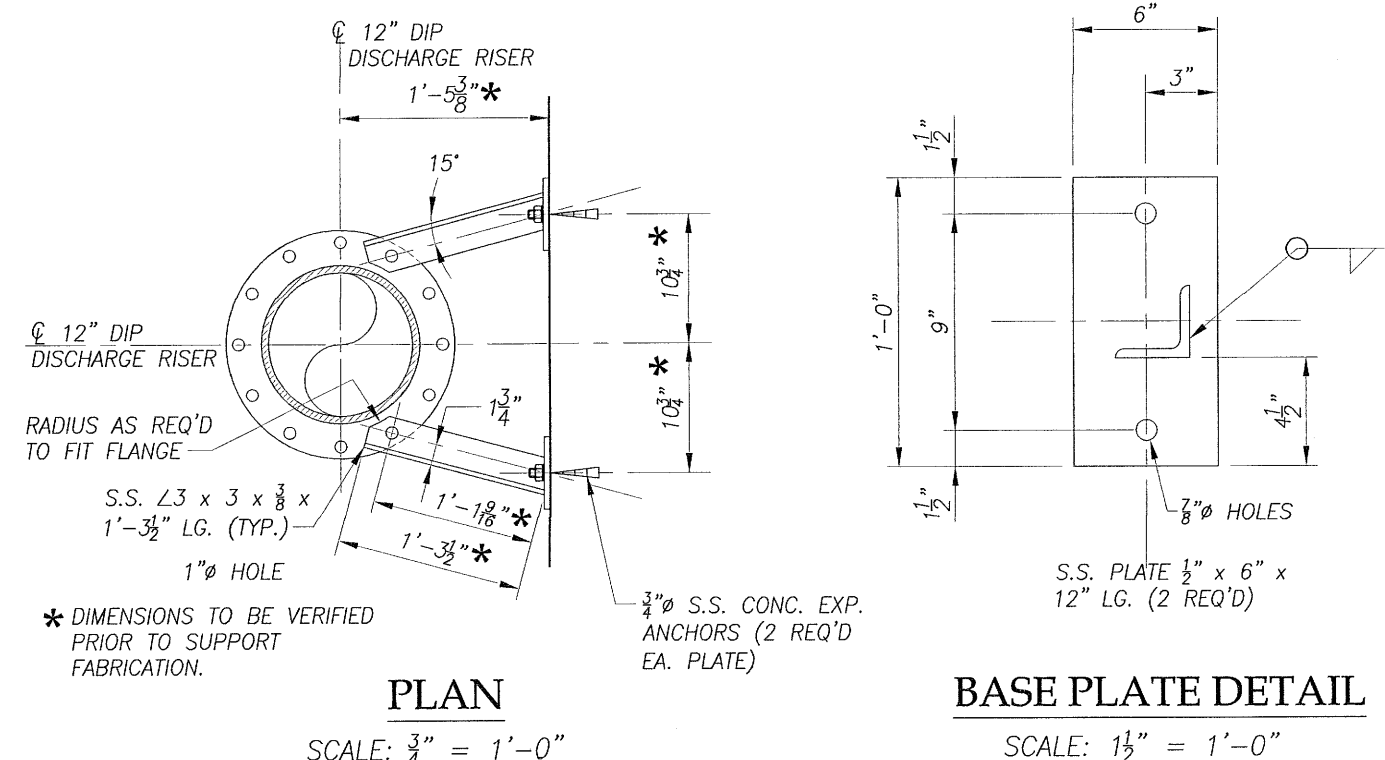
342.33 HIGH WATER LEVEL ALARM
341.83 LAG-LAG PUMP ON
341.33 LAG PUMP ON
340.83 LEAD PUMP ON
339.83 LAG-LAG PUMP OFF
339.33 LAG PUMP OFF
338.83 LEAD PUMP OFF
338.33 LOW WATER LEVEL ALARM

**SECONDARY CONTROLLER FLOAT SWITCH SETTINGS**

343.83 LAG-LAG PUMP ON
343.33 LAG PUMP ON
342.83 LEAD PUMP ON & SECONDARY CONTROLLER ACTIVATED ALARM
338.00 PUMPS OFF

**GENERAL NOTES:**

- ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE PROVIDED WITH PROTECTO 401 LINING.
- ALL MECHANICAL JOINT FITTINGS TO BE FURNISHED WITH MEGA-LUG GLANDS OR GRIP RING ACCESSORIES.
- PROVIDE FLEXIBLE BOOT W/ S.S. STRAPS AT ALL STRUCTURE PENETRATIONS FOR GRAVITY SEWER LINES, AND FOR PIPE PENETRATIONS IN THE SURGE RELIEF VALVE VAULT, AIR VALVE VAULT, AND MAGMETER MANHOLE.
- PROVIDE INTERIOR COATING FOR WETWELL, VALVE VAULT, SURGE RELIEF VALVE VAULT, SOLIDS CUTTER MANHOLE (MH No. 2), MANHOLES No. 1, 3, 4, 5, 5A, 6, 7, 8, 8A, 13, AND ALL AIR VALVE MANHOLES PER THE SPECIFICATIONS AND TOWN STANDARDS.
- THE AREA THAT IS INSIDE THE LOOP DRIVEWAY AND INSIDE THE FENCE SHALL HAVE A FINAL GROUND COVER OF 4" CABG OVER A GEOTEXTILE WEED BARRIER.

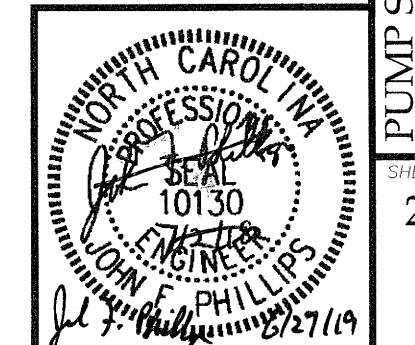
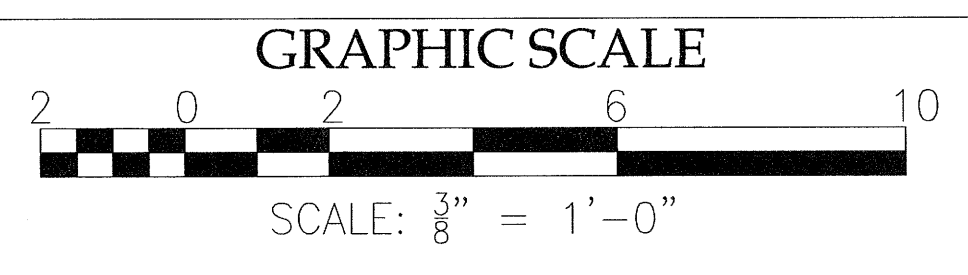


INTERMEDIATE PIPE SUPPORT DETAIL  
SCALE: 3/8" = 1'-0"

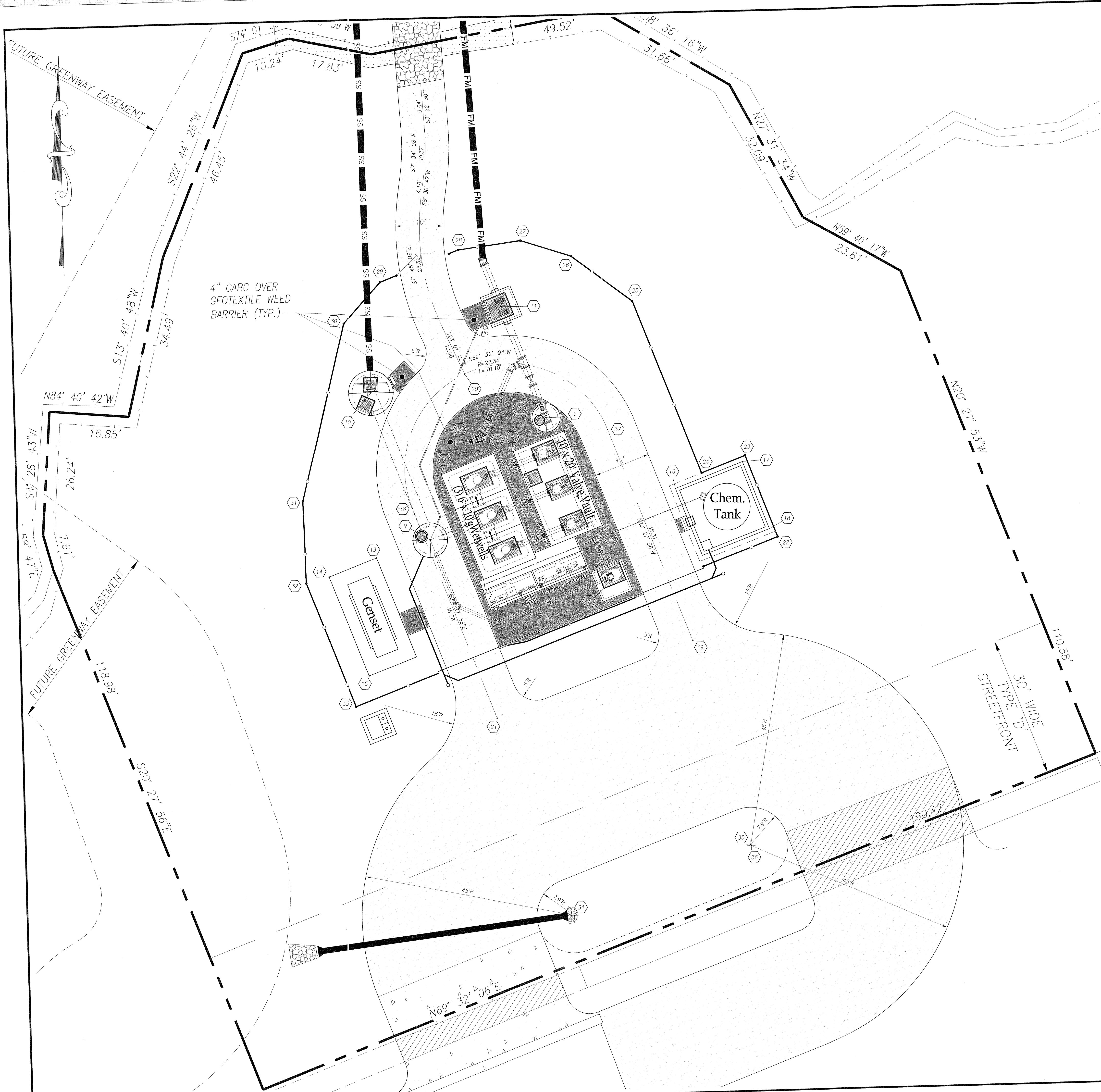
The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

NA	Date	WR - Stormwater	Date
NA	Date	NA	Date
Building Inspections	Date	Planning	Date
WR - Utility Engineering	3/15/19	Planning - Transportation	Date
N/A	Date	NA	Date
Electric	Date	Fire	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date

Issued for Bid Only







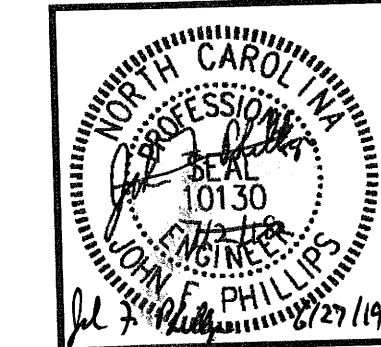
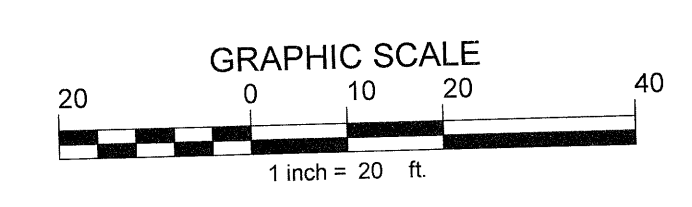
STAKING COORDINATES			
POINT No.	NORTHING	EASTING	DESCRIPTION
1	N707195.25	E2052135.63	SW CORNER OF WETWELL
2	N707217.74	E2052127.24	NW CORNER OF WETWELL
3	N707221.93	E2052138.48	NE CORNER OF WETWELL
4	N707222.24	E2052142.64	NW CORNER OF VALVE VAULT
5	N707226.32	E2052153.57	NE CORNER OF VALVE VAULT
6	N707206.02	E2052161.15	SE CORNER OF VALVE VAULT
7	N707194.21	E2052162.88	CENTER OF SURGE RELIEF VAULT
8	N707229.20	E2052149.84	CENTER OF AIR VALVE MANHOLE
9	N707203.93	E2052124.57	CENTER OF MH No. 1
10	N707235.48	E2052112.79	CENTER OF SOLIDS CUTTER MH No. 2
11	N707238.99	E2052132.79	CENTER OF MAGMETER MANHOLE
12	N707225.34	E2052135.98	PUMP BYPASS CONNECTION
13	N707200.45	E2052113.06	NE CORNER OF GENERATOR SLAB *
14	N707196.66	E2052102.91	NW CORNER OF GENERATOR SLAB *
15	N707175.42	E2052110.83	SW CORNER OF GENERATOR SLAB
16	N707213.49	E2052176.87	NW CORNER OF CHEM. TANK CONTAINMENT STRUCTURE
17	N707218.85	E2052191.24	NE CORNER OF CHEM. TANK CONTAINMENT STRUCTURE
18	N707204.49	E2052196.60	SE CORNER OF CHEM. TANK CONTAINMENT STRUCTURE
19	N707181.13	E2052179.70	℄ OF 12' WIDE GRAVEL ACCESS DRIVE
20	N707238.99	E2052132.79	INT. OF 12' WIDE & 10' WIDE GRAVEL ACCESS DRIVES
21	N707181.13	E2052179.70	℄ OF 12' WIDE GRAVEL ACCESS DRIVE
22	N707202.74	E2052198.32	FENCE CORNER
23	N707213.49	E2052176.87	FENCE CORNER
24	N707216.66	E2052182.51	FENCE CORNER
25	N707253.54	N2052168.75	FENCE CORNER
26	N707263.42	E2052155.94	FENCE CORNER
27	N707266.99	E2052145.29	FENCE CORNER
28	N707265.30	E2052132.05	FENCE CORNER
29	N707258.91	E2052115.30	FENCE CORNER
30	N707250.29	E2052107.40	FENCE CORNER
31	N707212.86	E2052097.75	FENCE CORNER
32	N707195.42	E2052098.04	FENCE CORNER
33	N707168.99	E2052107.90	FENCE CORNER
34	N707123.41	E2052153.02	RADIUS PT. - TRUCK TURN AROUND
35	N707137.54	E2052190.88	RADIUS PT. - TRUCK TURN AROUND
36	N707137.26	E2052190.99	RADIUS PT. - TRUCK TURN AROUND
37	N707226.39	E2052162.81	RADIUS PT. - 12' WD. GRAVEL ACCESS DR.
38	N707210.77	E2052120.95	RADIUS PT. - 12' WD. GRAVEL ACCESS DR.

\* SUBJECT TO CHANGE, DEPENDING UPON DIMENSIONS OF SUBMITTED GENERATOR

**NOTE:**  
SEE SHEET 19 FOR HORIZONTAL AND VERTICAL CONTROL POINTS.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

NA	Date	WR - Stormwater	Date
<i>Samantha Doren</i>	3/4/19	NA	Date
Building Inspections	Date	Planning	Date
<i>Doug</i>	3/5/19	<i>Samuel R. Rife</i>	3/4/19
WR - Utility Engineering	Date	Planning - Transportation	Date
NA	Date	NA	Date
Electric	Date	Fire	Date
NA	Date	NA	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date



Issued for Bid Only

DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: 1" = 10'  
 FILE: MCBPS-PS

DIEHL & PHILLIPS, P.A.  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972

**D&P**

MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MFW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA

PUMP STATION - STAKING PLAN  
 CONTRACT 1

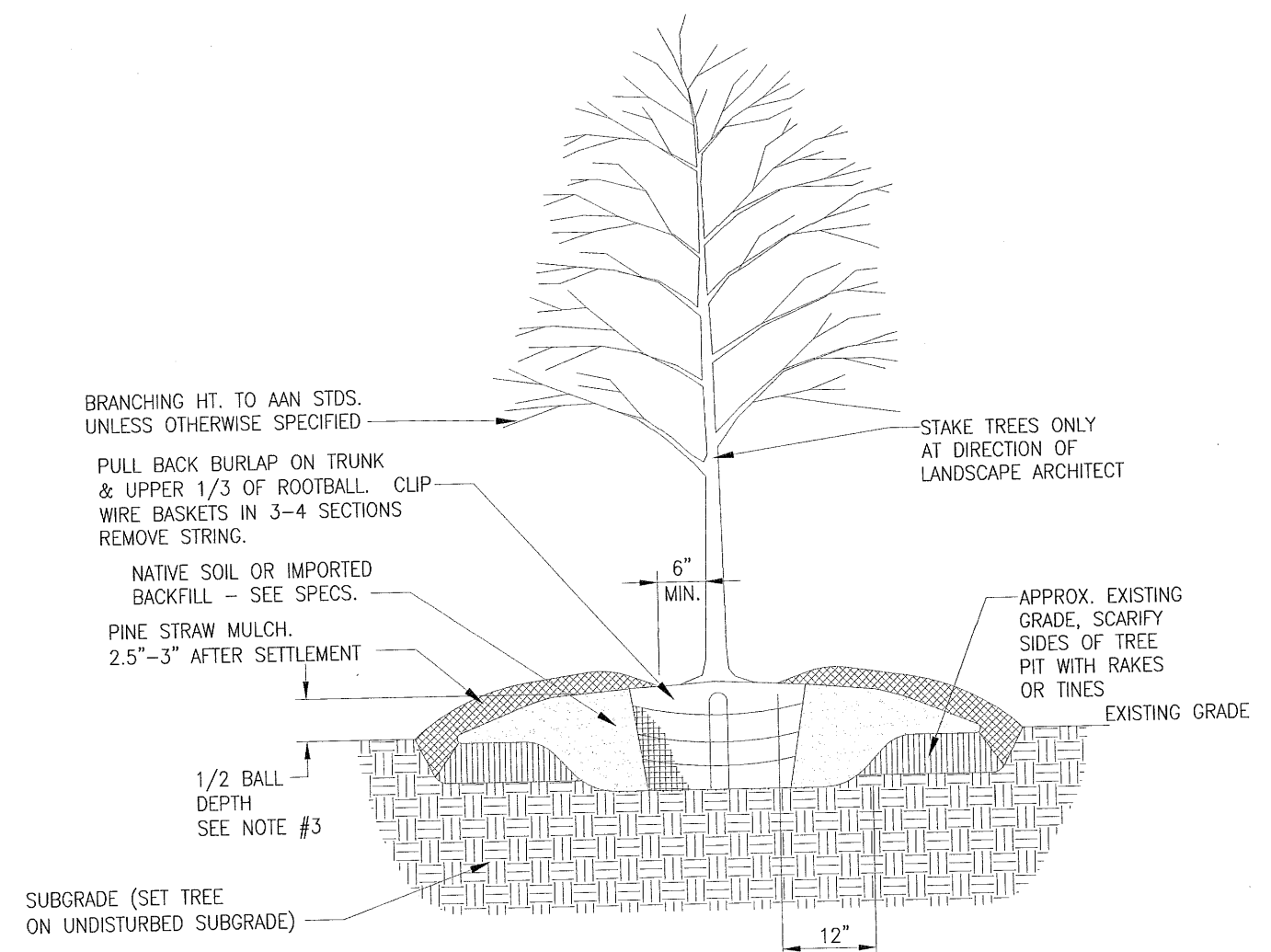
SHEET 24 OF 33



PLANT LIST							
TREES	COMMON NAME	QTY	CAL.	HT.	SPREAD	ROOT	REMARKS
QUERCUS BICOLOR	SWAMP WHITE OAK	2	2.5"	12'		BB	
QUERCUS SHUMARDII	SHUMARD OAK	2	2.5"	12'		BB	
SHRUBS							
VIBURNUM PRUNIFOLIUM	BLACKHAWK VIBURNUM	5		5'			CONT.
PRUNUS CAROLINIANA 'BRIGHT N TIGHT'	CAROLINA CHERRY LAUREL	54		5'			CONT.
ORNAMENTAL GRASS GROUNDCOVER							
CHASMANTHIUM LATIFOLIUM	RIVER OATS	-			1-2.5'		3 GAL. CONT.
PENNISETUM ORIENTALE 'KARLEY ROSE'	ORIENTAL FOUNTAIN GRASS	-			2-3'		3 GAL. CONT.
RHUS AROMATIC 'GRO-LOW'	FRAGRANT SUMAC	-			3-6'		1 GAL. CONT.
CEPHELANTHUS OCCIDENTALIS	COMMON BUTTONBUSH	-			3-6'		1 GAL. CONT.

**STREETFRONT BUFFER CALCULATION**

30' TYPE 'D' STREETFRONT BUFFER  
 5,713 SF TOTAL AREA - 2,932 UNVEGETATED (TRUCK TURN AROUND) = 2,781 SF VEGETATED  
 2,781 SF x 1 LARGE TREE PER 1,000 SF = 3 REQUIRED (4 LARGE TREES PROVIDED)

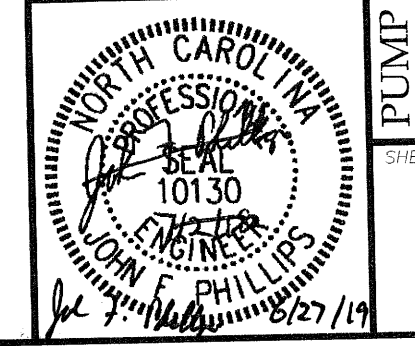
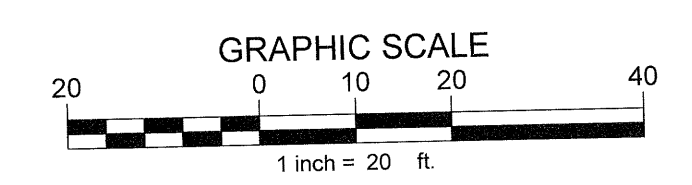


- NOTES:
- For container-grown trees, use fingers or small hand tools to pull the roots out of the outer layer of potting soil, then cut or pull apart any roots circling the perimeter of the container.
  - After digging hole, fill with water to confirm that water drains out of the soil. If hole does not perc, do not plant tree.
  - Thoroughly soak the tree root ball and adjacent prepared soil immediately after planting.
  - The planting process is similar for deciduous and evergreen trees.

**TREE PLANTING DETAIL**  
 NOT TO SCALE

**LEGEND**

- CRITICAL ROOT ZONE LIMITS
- TOP OF STREAM BANK
- LIMITS OF RIPARIAN BUFFER ZONE 1
- LIMITS OF RIPARIAN BUFFER ZONE 2
- TREE PROTECTION FENCE
- TREE PROTECTION/SILT FENCE
- SILT FENCE
- GRAVEL ACCESS DRIVE
- NORTH AMERICAN GREEN S150BN BIODEGRADABLE STRAW BLANKET
- SLOPE PLANTING

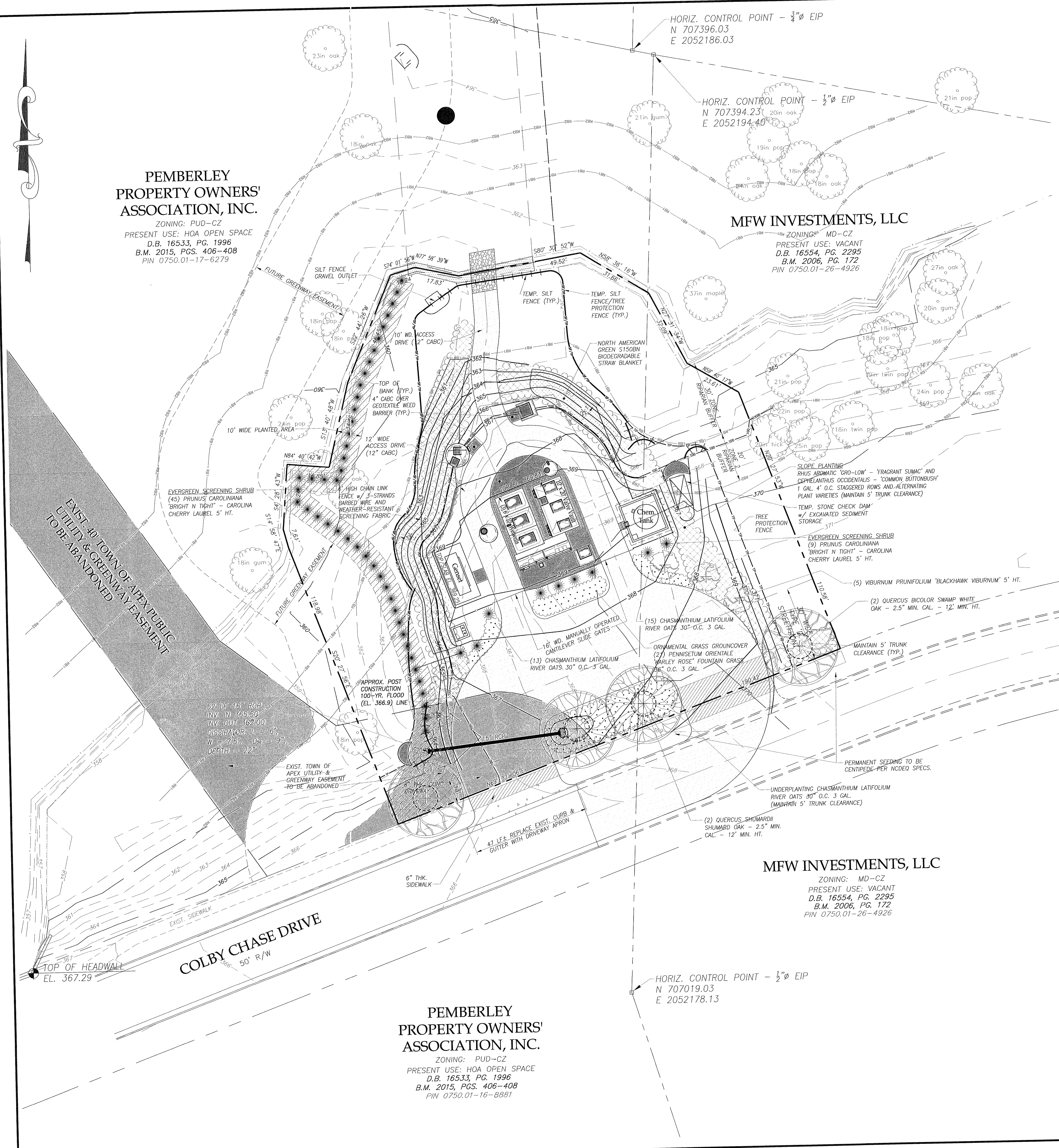


**PEMBERLEY PROPERTY OWNERS' ASSOCIATION, INC.**  
 ZONING: PUD-CZ  
 PRESENT USE: HOA OPEN SPACE  
 D.B. 16533, PG. 1996  
 B.M. 2015, PGS. 406-408  
 PIN 0750.01-17-6279

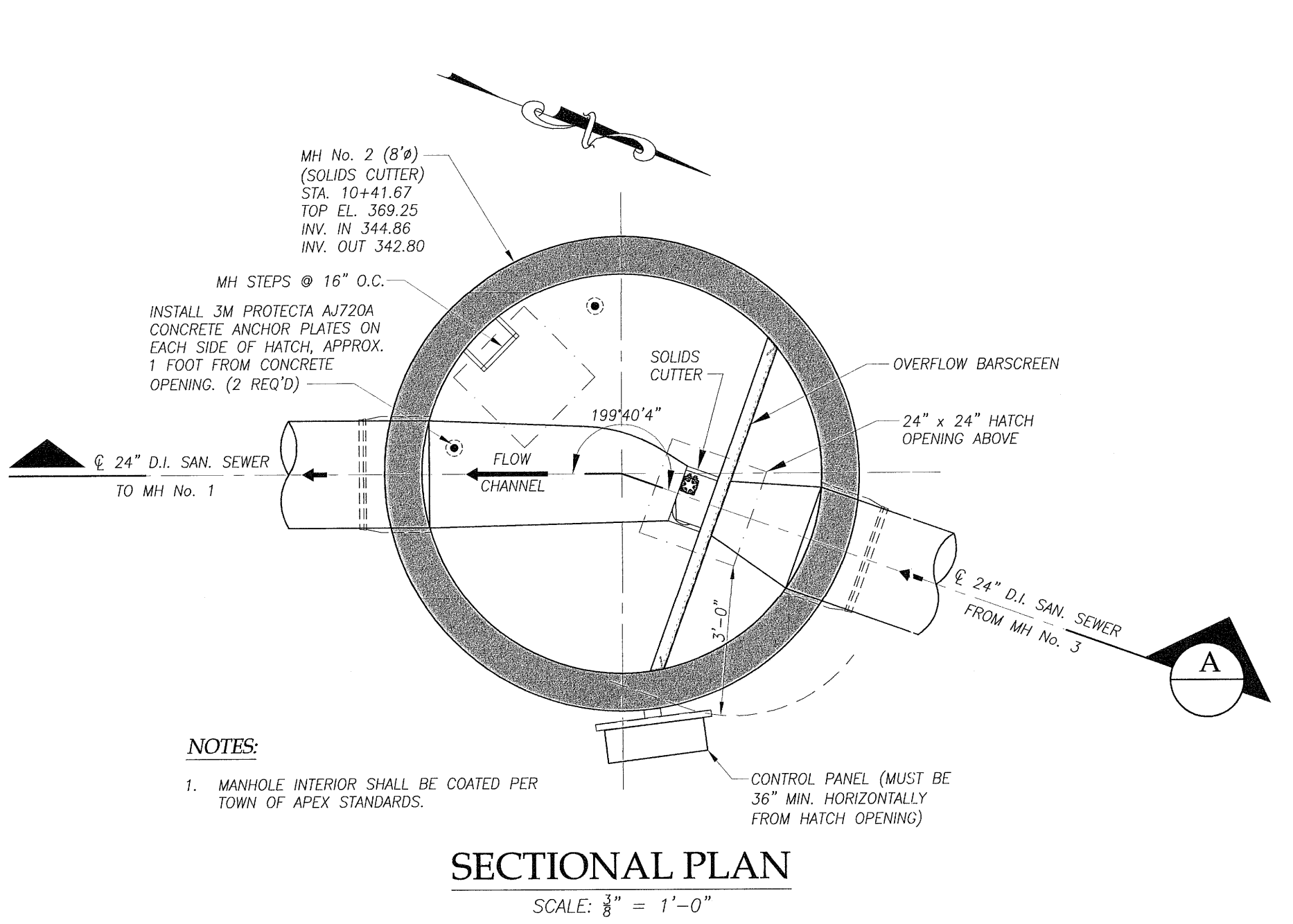
**MFW INVESTMENTS, LLC**  
 ZONING: MD-CZ  
 PRESENT USE: VACANT  
 D.B. 16554, PG. 2295  
 B.M. 2006, PG. 172  
 PIN 0750.01-26-4926

**MFW INVESTMENTS, LLC**  
 ZONING: MD-CZ  
 PRESENT USE: VACANT  
 D.B. 16554, PG. 2295  
 B.M. 2006, PG. 172  
 PIN 0750.01-26-4926

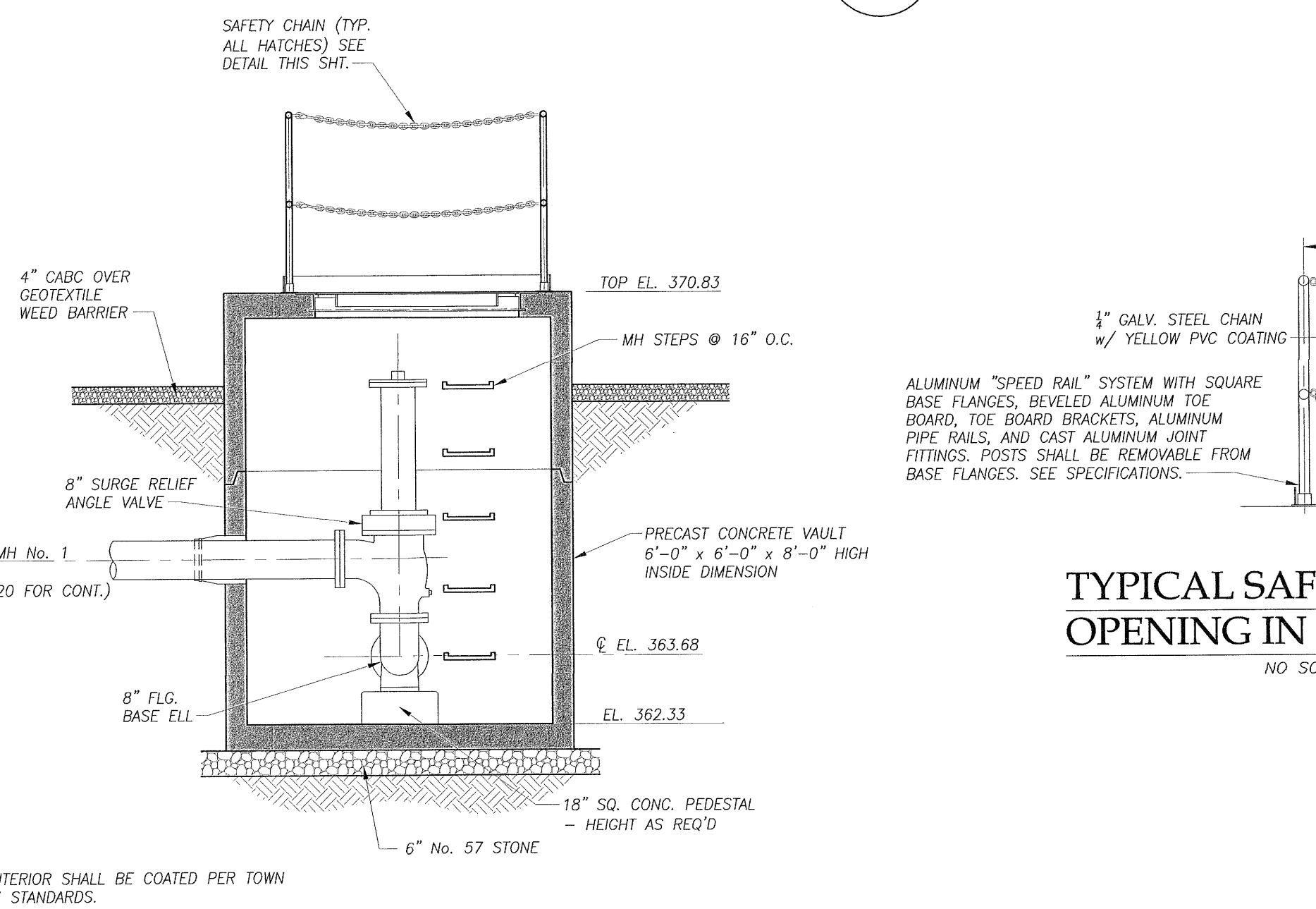
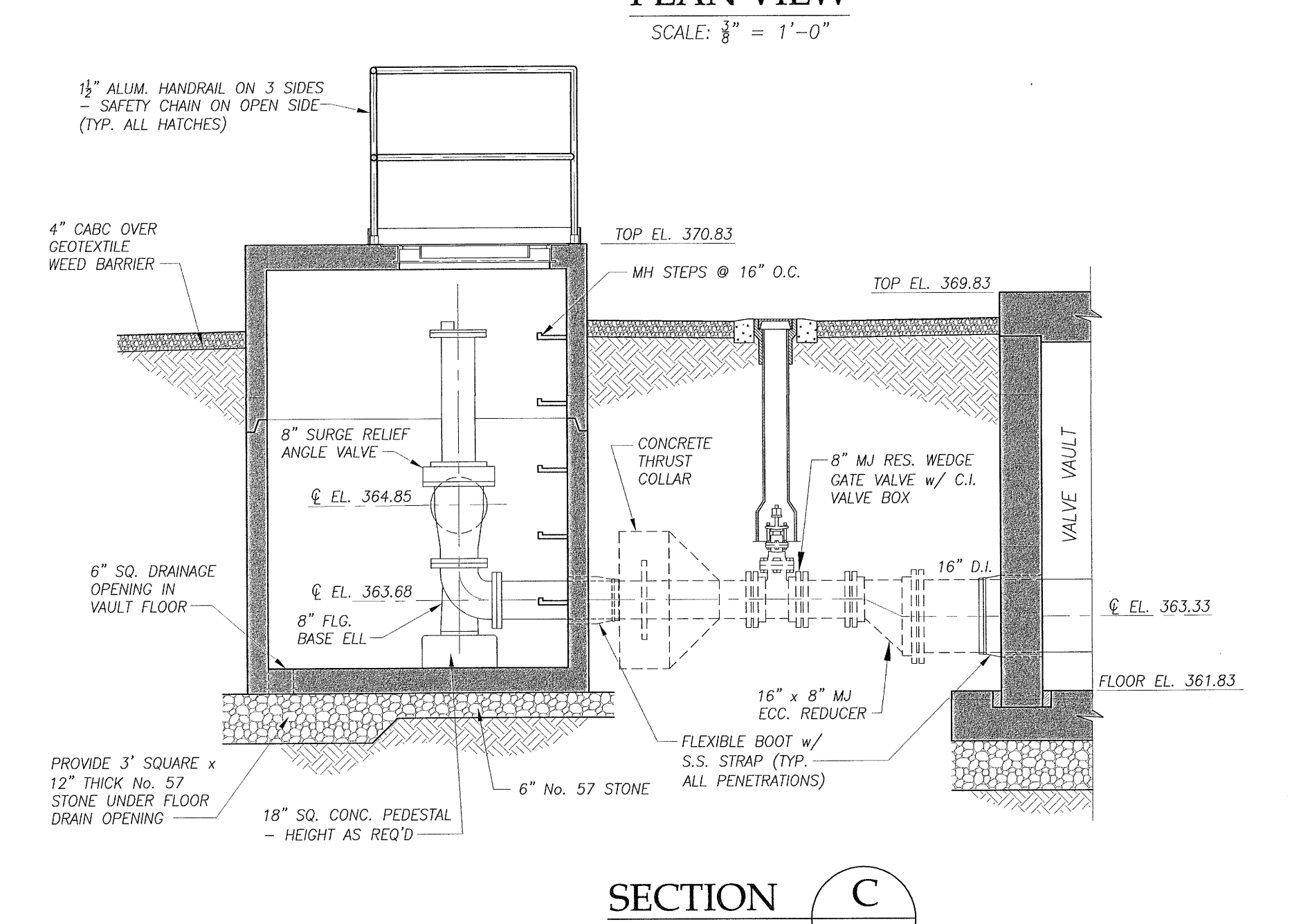
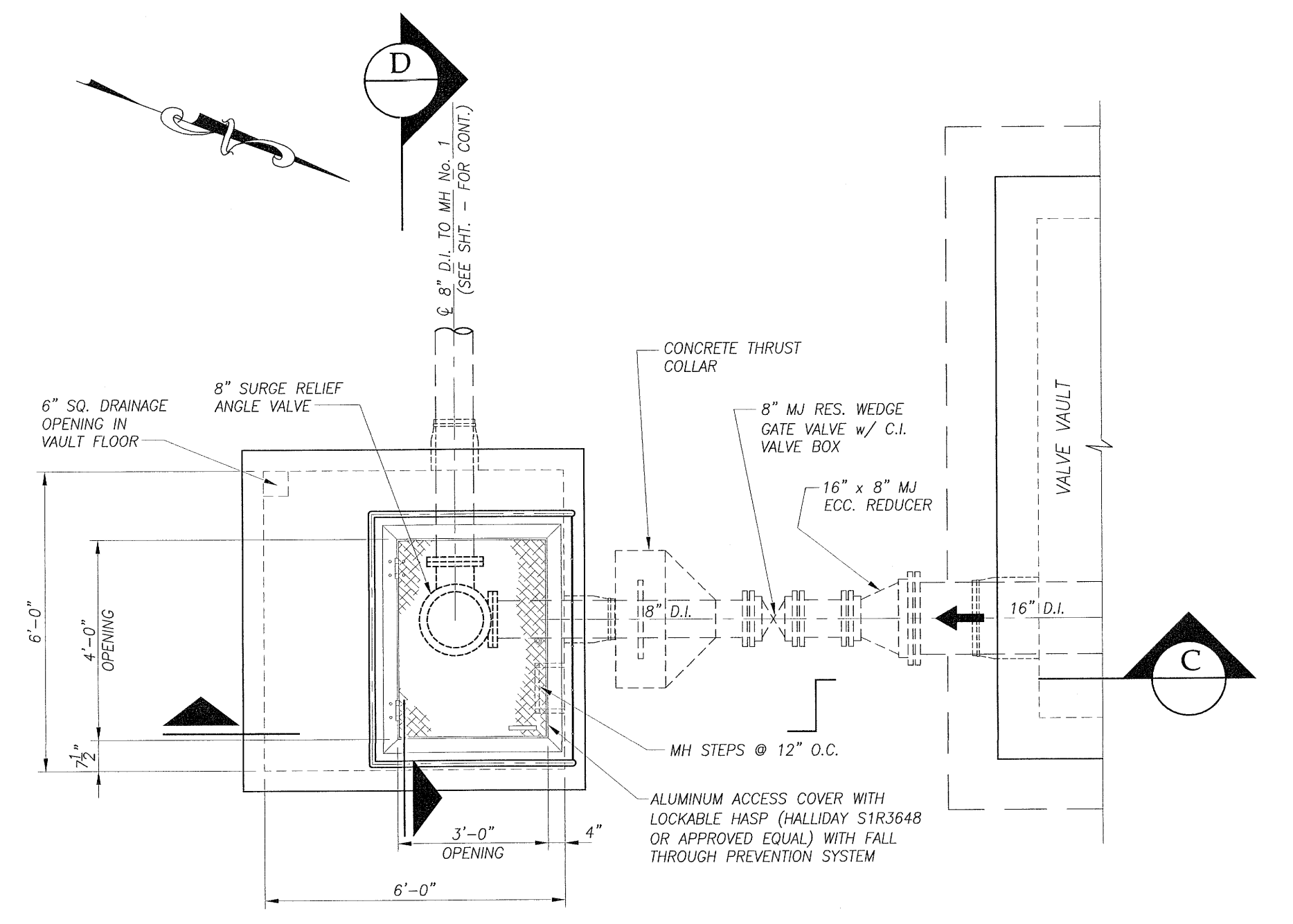
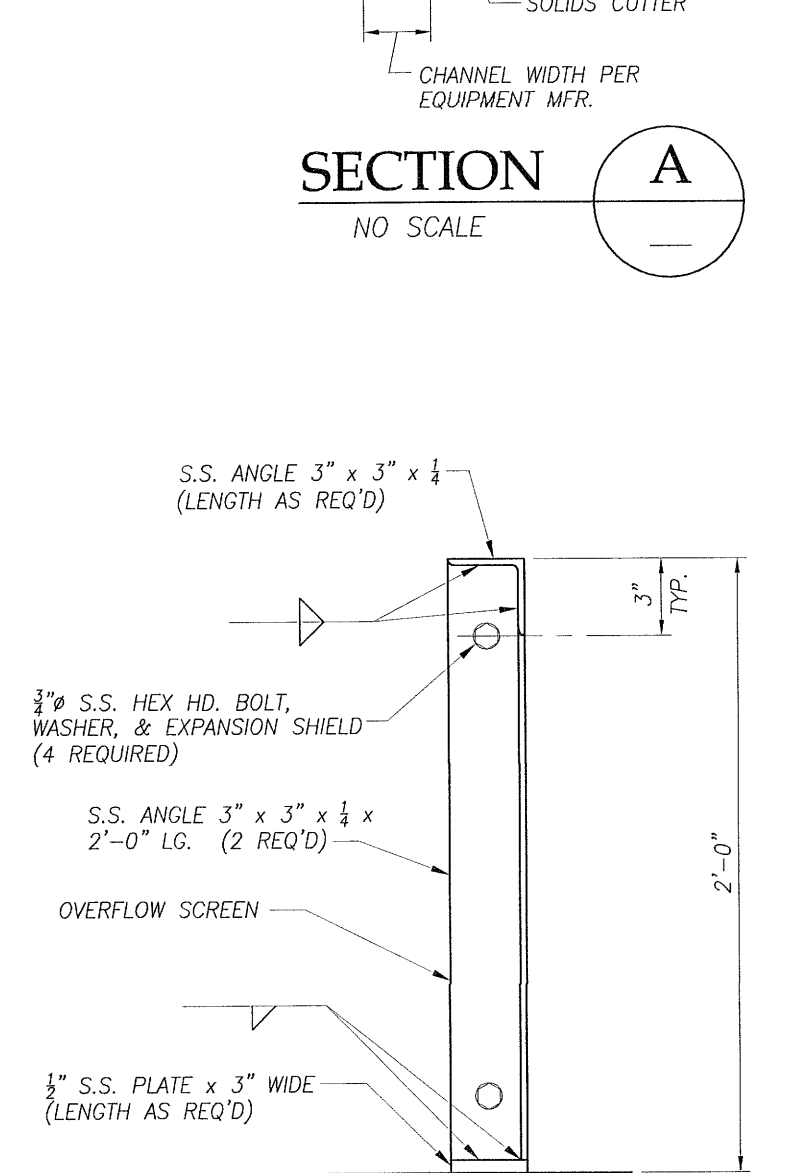
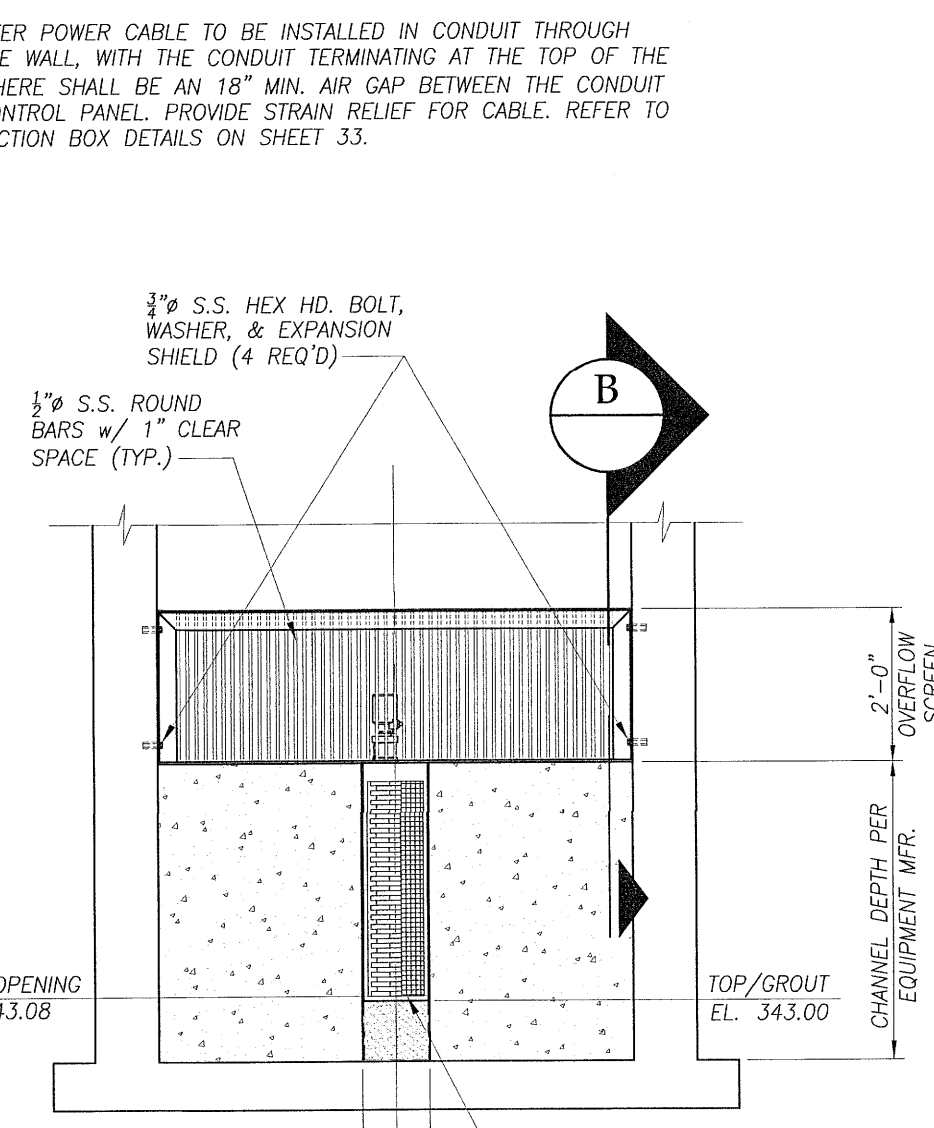
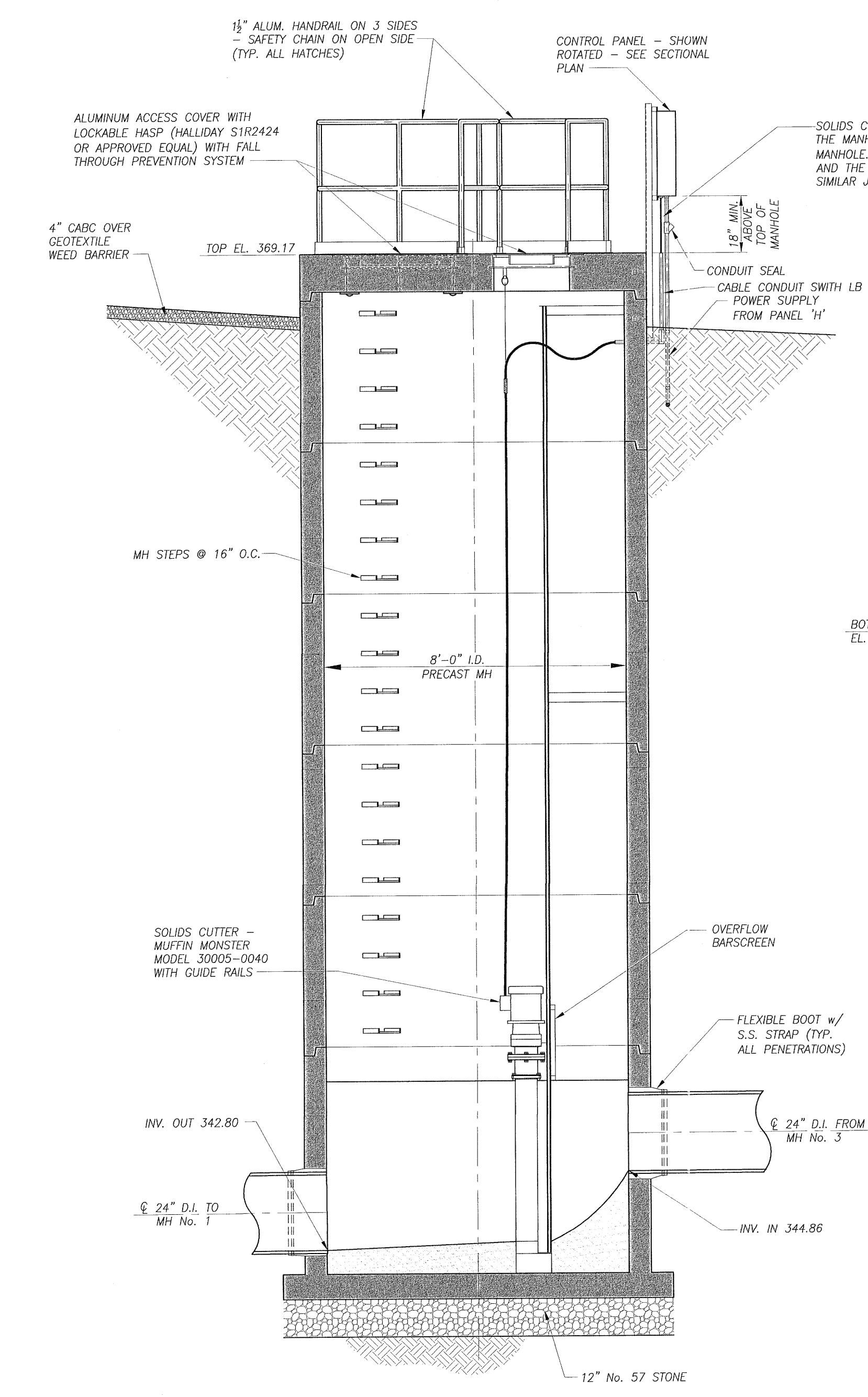
**PEMBERLEY PROPERTY OWNERS' ASSOCIATION, INC.**  
 ZONING: PUD-CZ  
 PRESENT USE: HOA OPEN SPACE  
 D.B. 16533, PG. 1996  
 B.M. 2015, PGS. 406-408  
 PIN 0750.01-16-8881





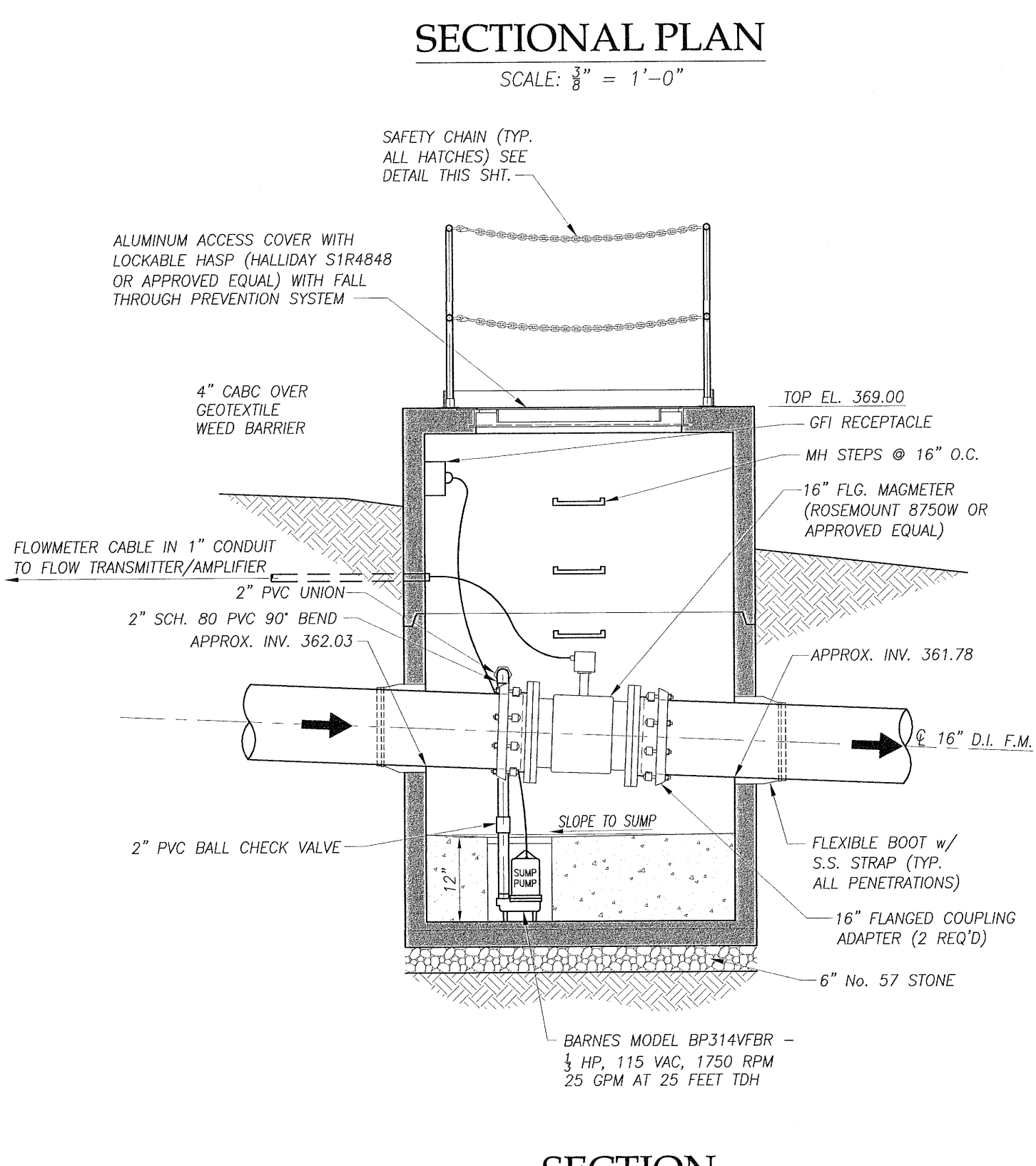
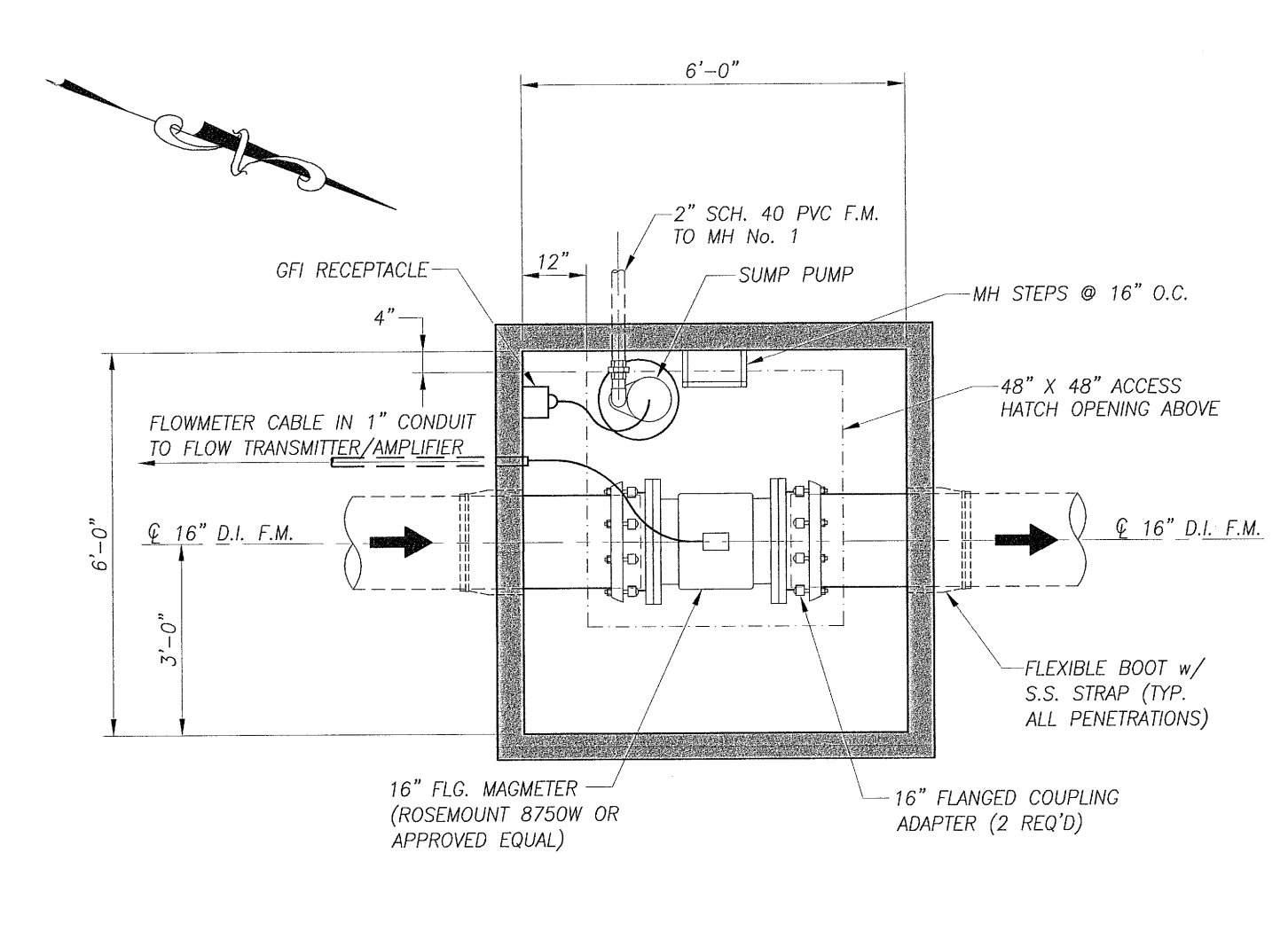


NOTES:  
 1. MANHOLE INTERIOR SHALL BE COATED PER TOWN OF APEX STANDARDS.  
 CONTROL PANEL (MUST BE 36" MIN. HORIZONTALLY FROM HATCH OPENING)

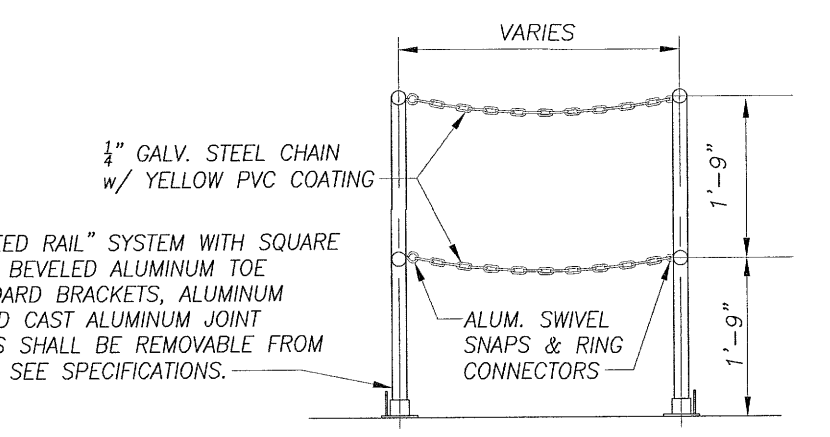


NOTES:  
 1. VAULT INTERIOR SHALL BE COATED PER TOWN OF APEX STANDARDS.

**SURGE RELIEF VALVE VAULT DETAIL**

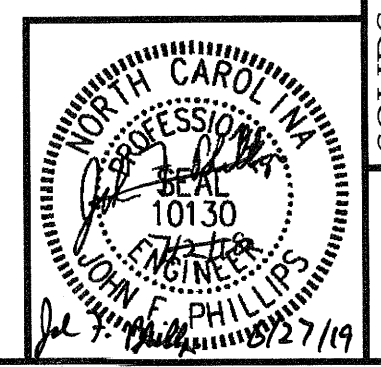
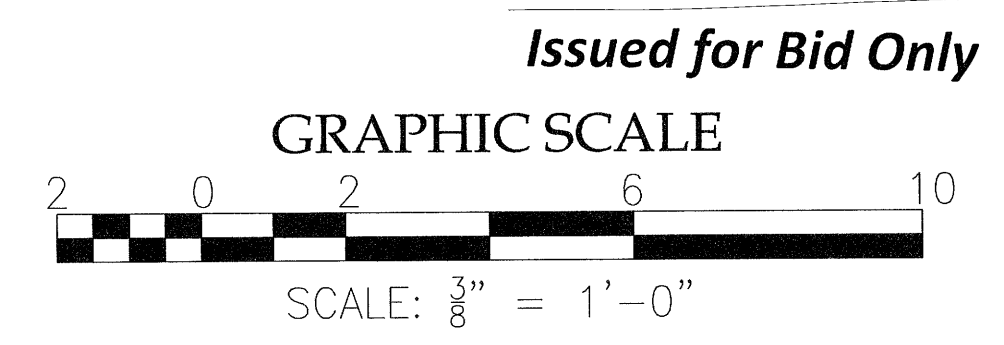


**MAGMETER VAULT DETAIL**

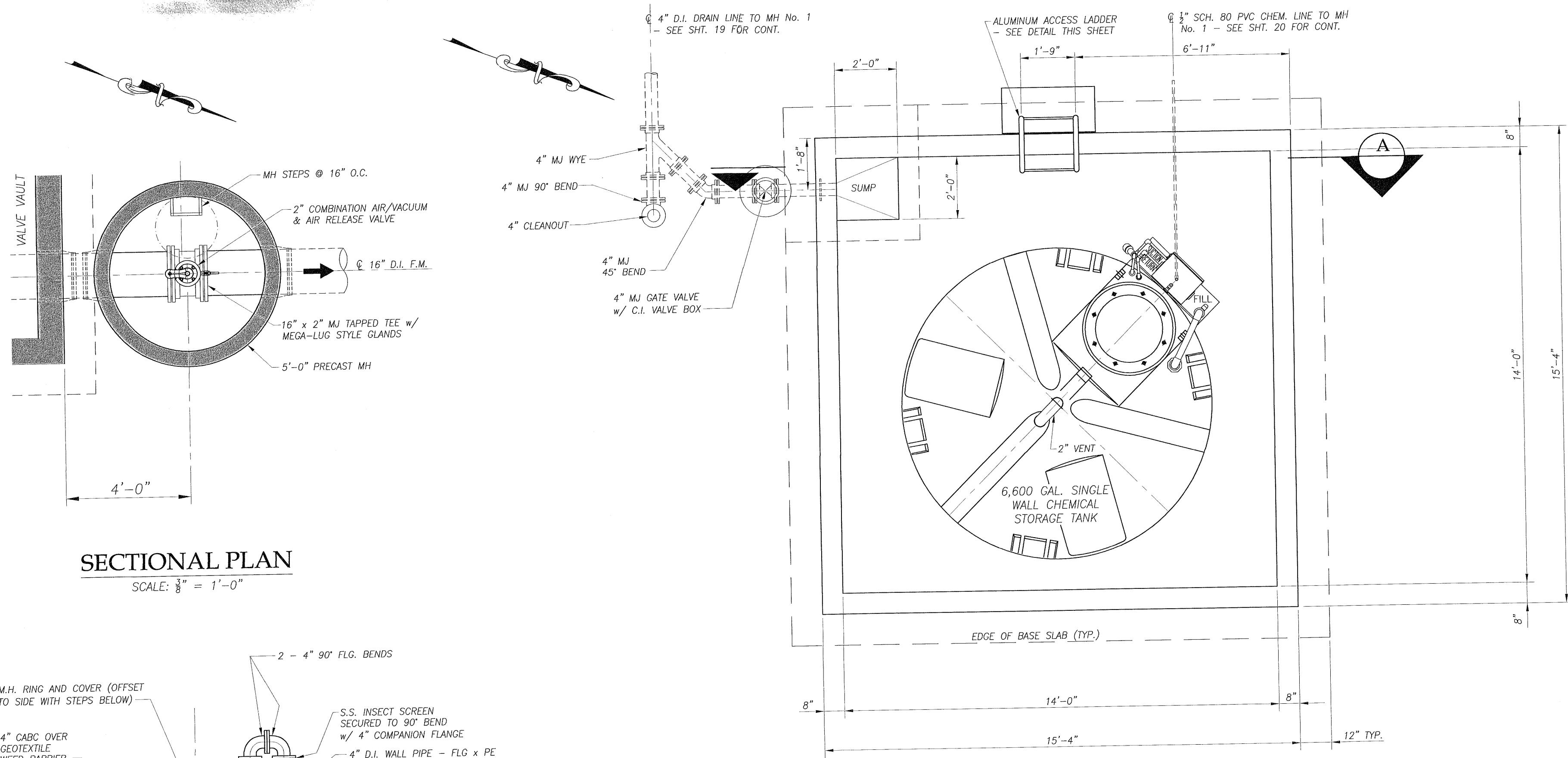


The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

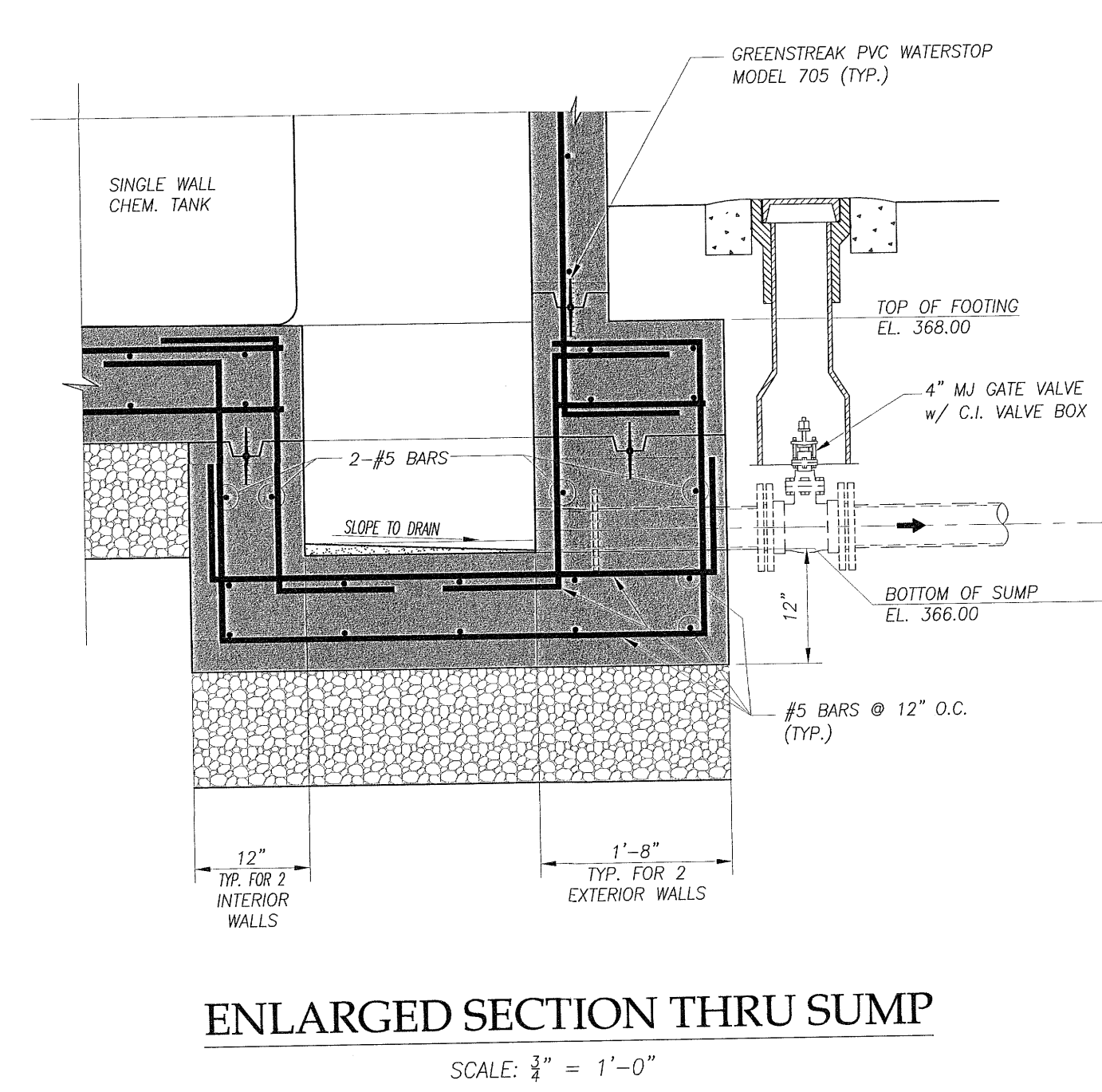
FW-Transportation	Date	WR - Stormwater	Date
Building Inspections	Date	Planning	Date
WR - Utility Engineering	3-15-15	Planning - Transportation	Date
Electric	Date	Fire	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date



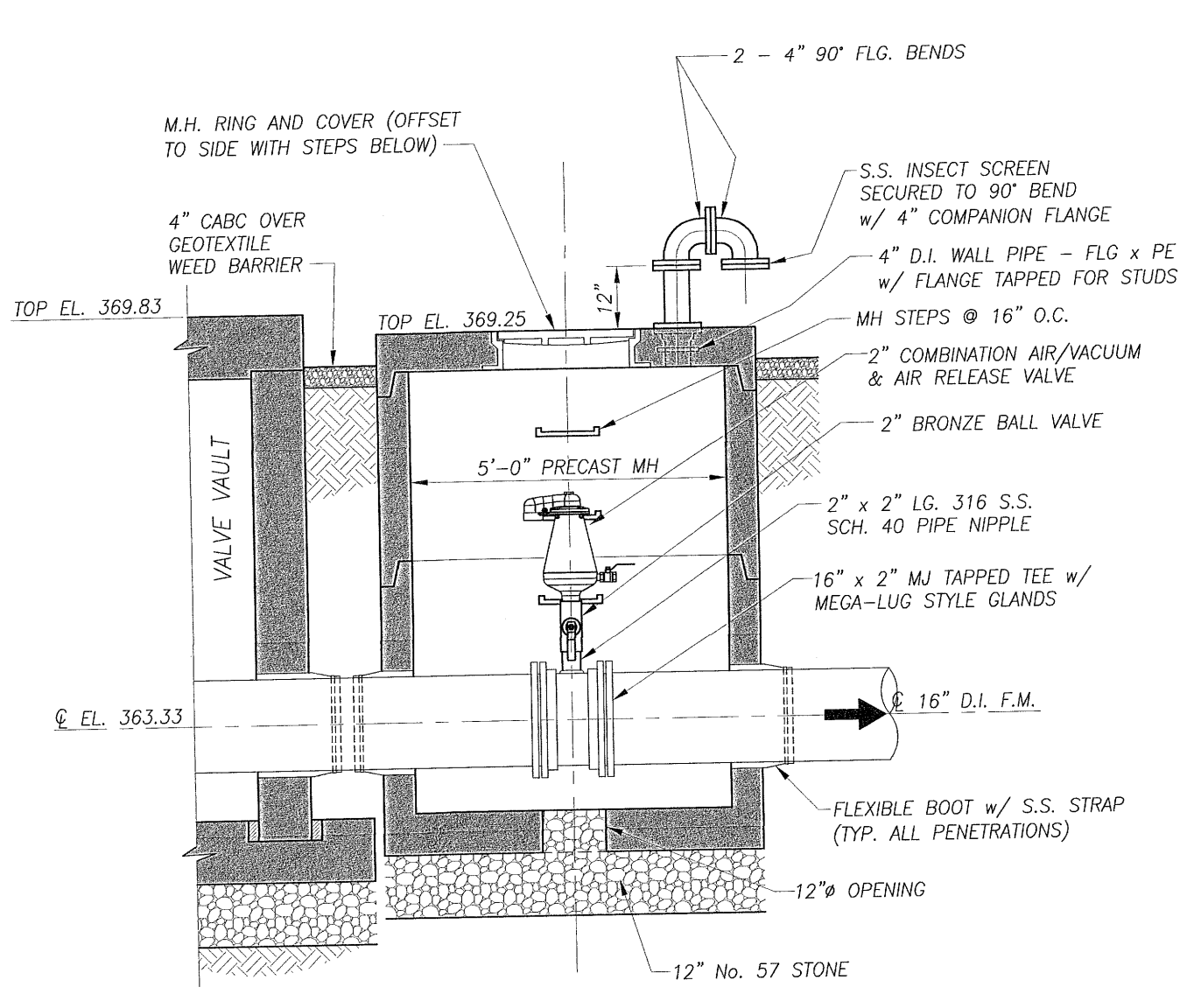




**SECTIONAL PLAN**  
SCALE: 3/8" = 1'-0"



**ENLARGED SECTION THRU SUMP**  
SCALE: 3/8" = 1'-0"

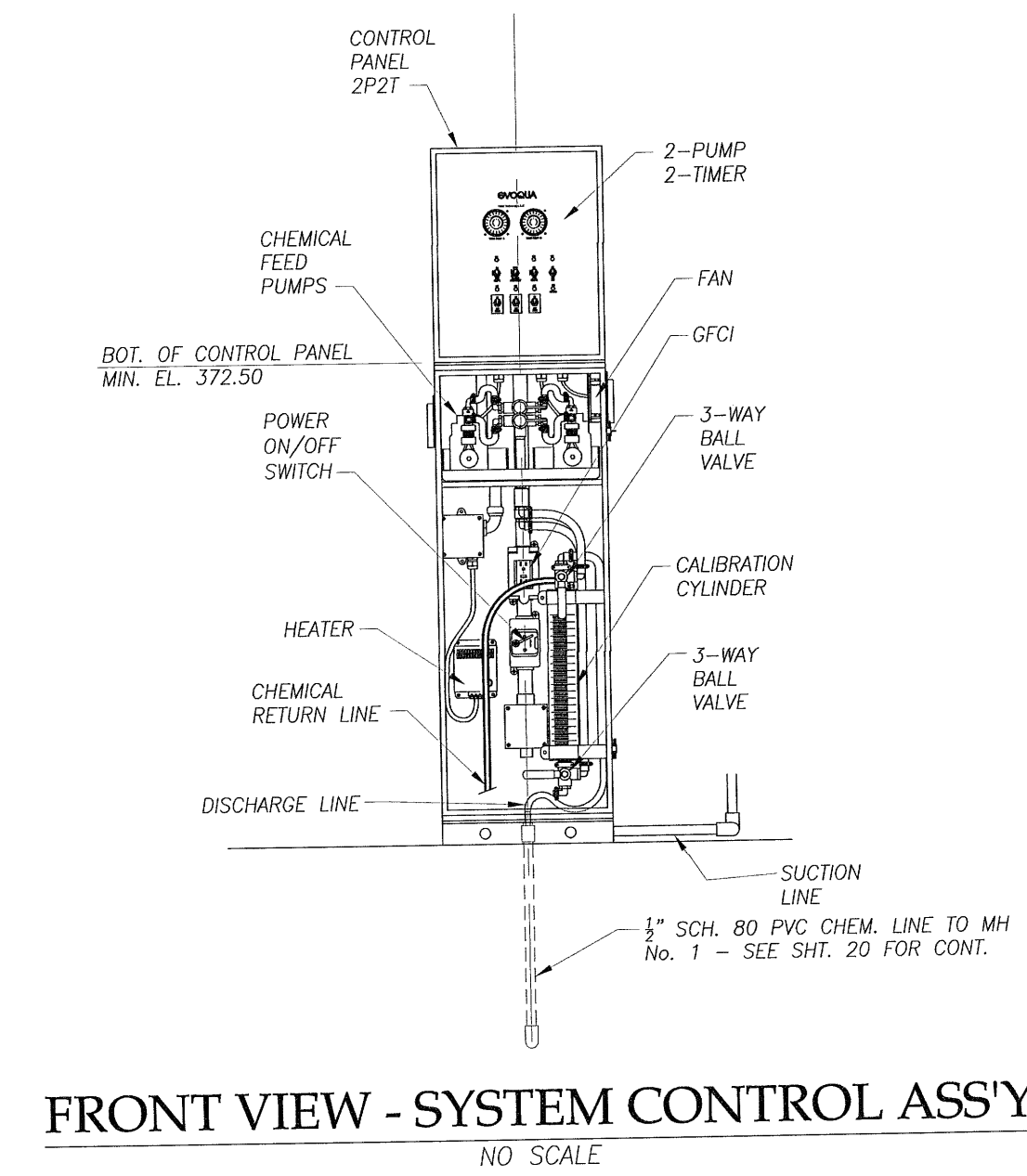


**SECTION**  
SCALE: 3/8" = 1'-0"

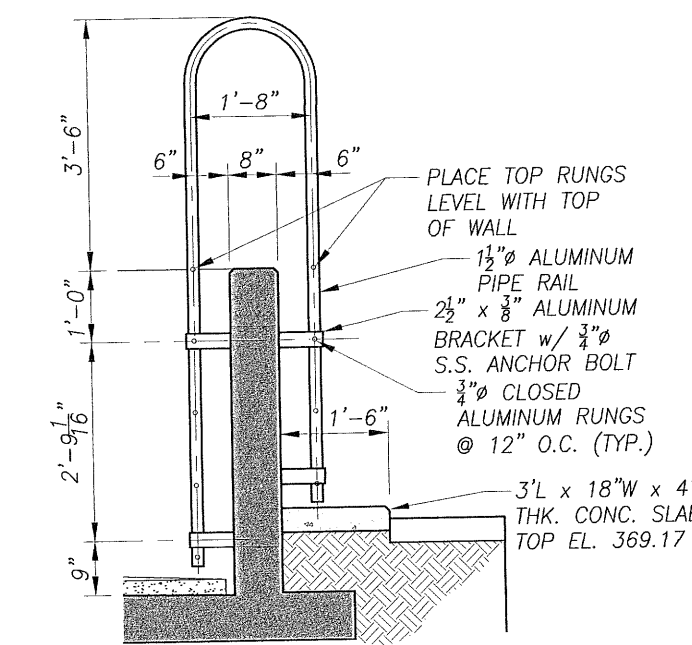
**AIR VALVE MANHOLE @ P.S. DETAIL**



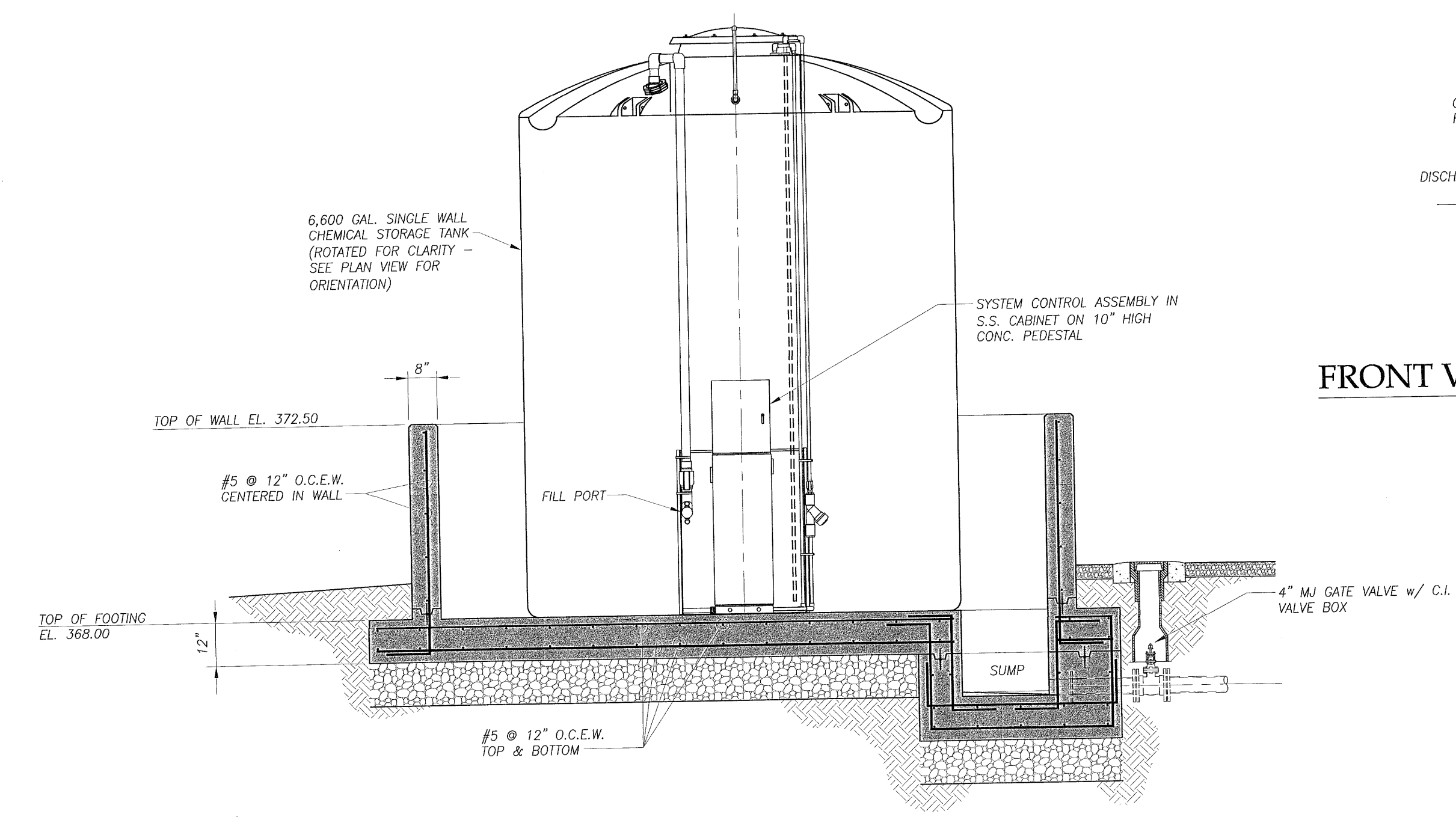
**PLAN VIEW**  
SCALE: 3/8" = 1'-0"



**FRONT VIEW - SYSTEM CONTROL ASS'Y**  
NO SCALE

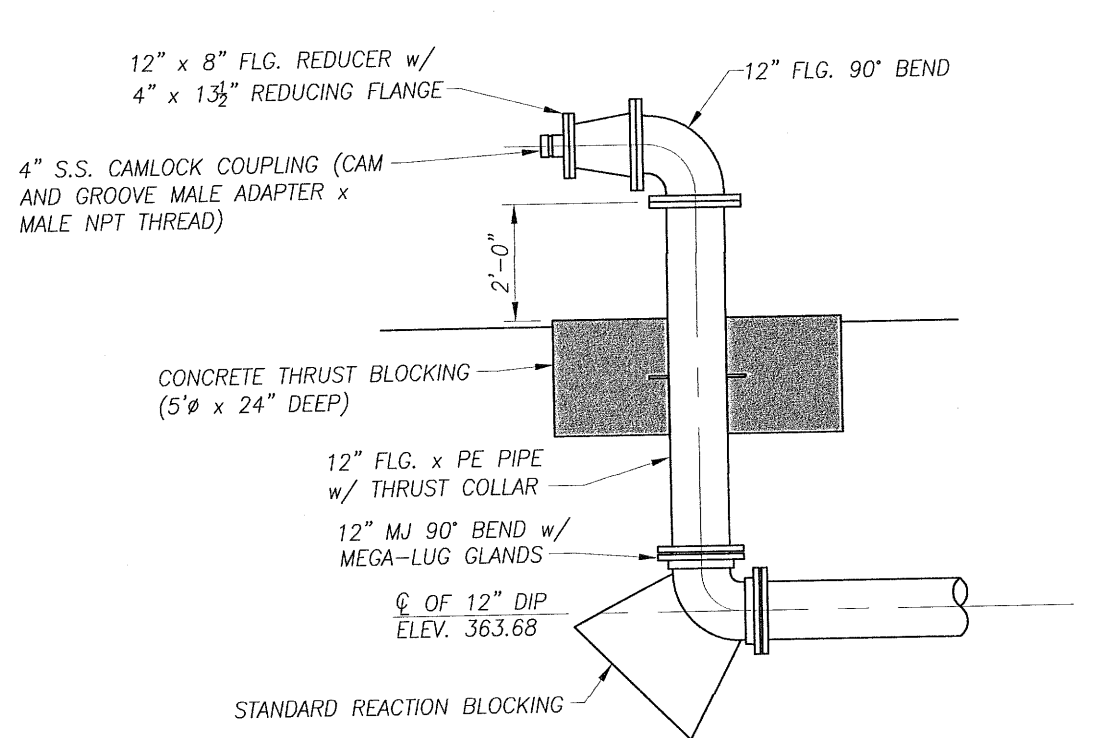


**ALUM. ACCESS LADDER DETAIL**  
SCALE: 3/8" = 1'-0"



**SECTION**  
SCALE: 3/8" = 1'-0"

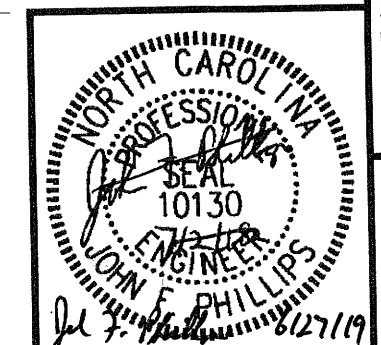
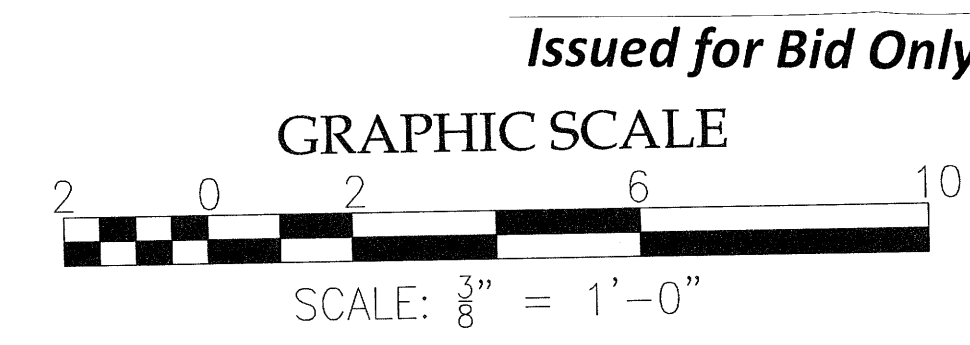
**CHEMICAL STORAGE TANK DETAILS**



**EMERGENCY BYPASS CONNECTION DETAIL**  
NO SCALE

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

N/A	Date	N/A	Date
PW-Transportation		WR - Stormwater	
N/A	Date	N/A	Date
Building Inspections		Planning	
WR - Utility Engineering	3-15-15	Planning - Transportation	
N/A	Date	Fire	
Electric		Fire	
N/A	Date	Parks, Recreation & Cultural Res.	
WR - S & E			



REVISIONS:  
 REVISION NO. DATE BY  
 1 02/19 JFP  
 2 02/19 JFP  
 3 02/19 JFP  
 4 02/19 JFP  
 5 02/19 JFP  
 6 02/19 JFP  
 7 02/19 JFP  
 8 02/19 JFP  
 9 02/19 JFP  
 10 02/19 JFP  
 11 02/19 JFP  
 12 02/19 JFP  
 13 02/19 JFP  
 14 02/19 JFP  
 15 02/19 JFP  
 16 02/19 JFP  
 17 02/19 JFP  
 18 02/19 JFP  
 19 02/19 JFP  
 20 02/19 JFP  
 21 02/19 JFP  
 22 02/19 JFP  
 23 02/19 JFP  
 24 02/19 JFP  
 25 02/19 JFP  
 26 02/19 JFP  
 27 02/19 JFP  
 28 02/19 JFP  
 29 02/19 JFP  
 30 02/19 JFP  
 31 02/19 JFP  
 32 02/19 JFP  
 33 02/19 JFP  
 34 02/19 JFP  
 35 02/19 JFP  
 36 02/19 JFP  
 37 02/19 JFP  
 38 02/19 JFP  
 39 02/19 JFP  
 40 02/19 JFP  
 41 02/19 JFP  
 42 02/19 JFP  
 43 02/19 JFP  
 44 02/19 JFP  
 45 02/19 JFP  
 46 02/19 JFP  
 47 02/19 JFP  
 48 02/19 JFP  
 49 02/19 JFP  
 50 02/19 JFP  
 51 02/19 JFP  
 52 02/19 JFP  
 53 02/19 JFP  
 54 02/19 JFP  
 55 02/19 JFP  
 56 02/19 JFP  
 57 02/19 JFP  
 58 02/19 JFP  
 59 02/19 JFP  
 60 02/19 JFP  
 61 02/19 JFP  
 62 02/19 JFP  
 63 02/19 JFP  
 64 02/19 JFP  
 65 02/19 JFP  
 66 02/19 JFP  
 67 02/19 JFP  
 68 02/19 JFP  
 69 02/19 JFP  
 70 02/19 JFP  
 71 02/19 JFP  
 72 02/19 JFP  
 73 02/19 JFP  
 74 02/19 JFP  
 75 02/19 JFP  
 76 02/19 JFP  
 77 02/19 JFP  
 78 02/19 JFP  
 79 02/19 JFP  
 80 02/19 JFP  
 81 02/19 JFP  
 82 02/19 JFP  
 83 02/19 JFP  
 84 02/19 JFP  
 85 02/19 JFP  
 86 02/19 JFP  
 87 02/19 JFP  
 88 02/19 JFP  
 89 02/19 JFP  
 90 02/19 JFP  
 91 02/19 JFP  
 92 02/19 JFP  
 93 02/19 JFP  
 94 02/19 JFP  
 95 02/19 JFP  
 96 02/19 JFP  
 97 02/19 JFP  
 98 02/19 JFP  
 99 02/19 JFP  
 100 02/19 JFP

**DIEHL & PHILLIPS, P.A.**  
 CONSULTING ENGINEERS - LIC. NO. C-0465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972

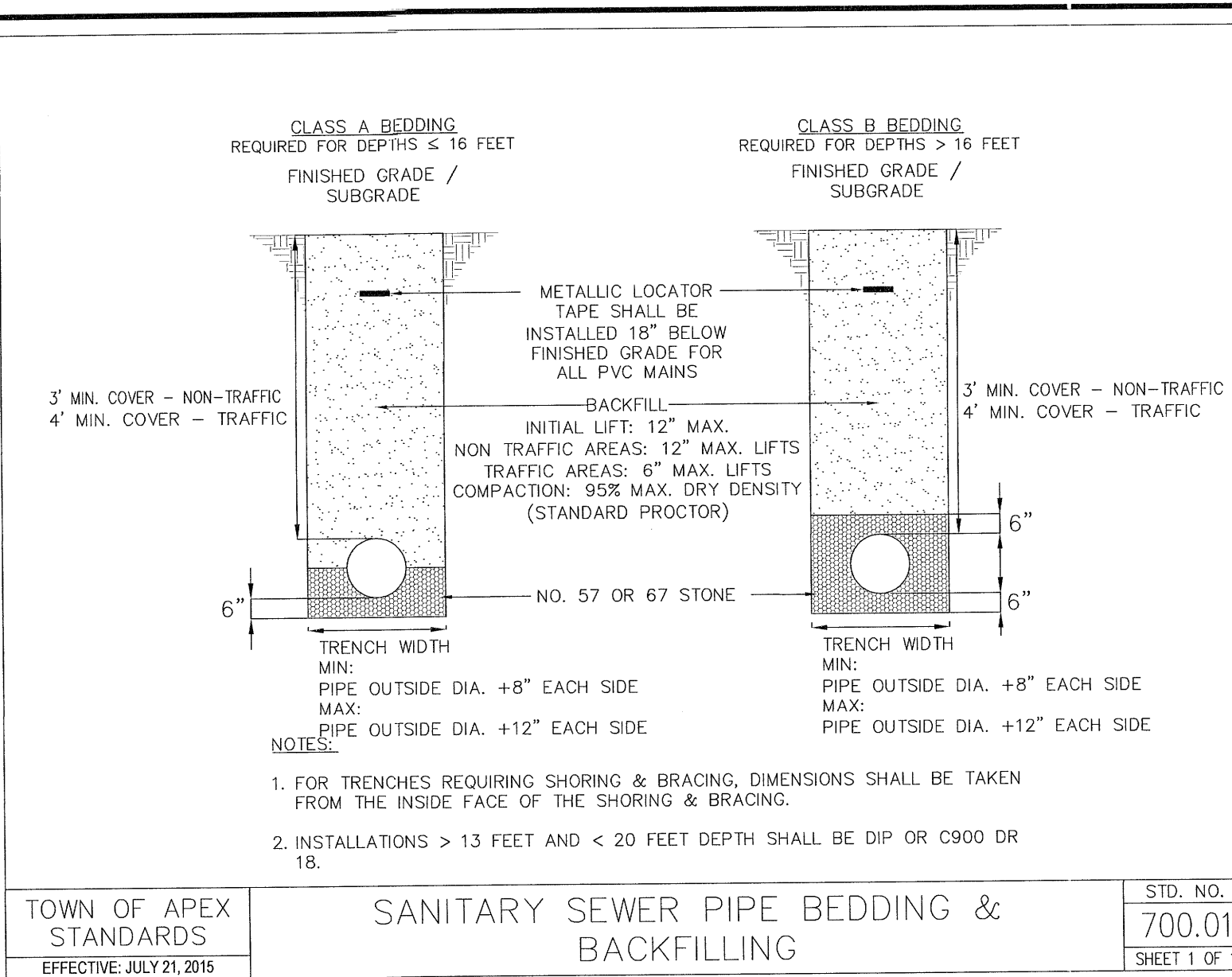
**D&P**

MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 NEW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA

AIR VALVE MANHOLE @ P.S.  
 DETAIL, CHEMICAL STORAGE TANK  
 DETAILS, & EMERGENCY BYPASS  
 CONNECTION DETAIL - CONTRACT 1

27  
 of  
 33

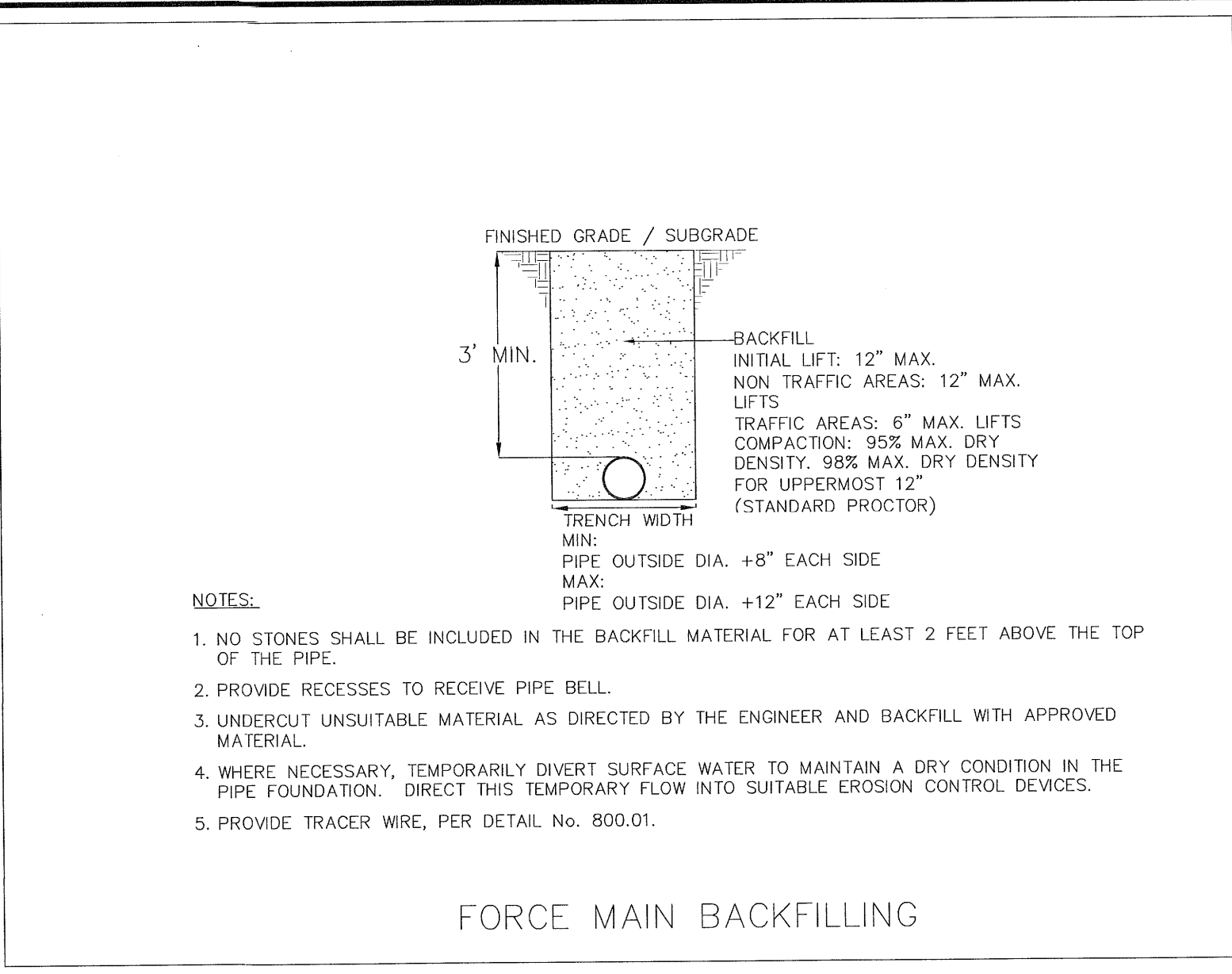




TOWN OF APEX STANDARDS  
EFFECTIVE: JULY 21, 2015

**SANITARY SEWER PIPE BEDDING & BACKFILLING**

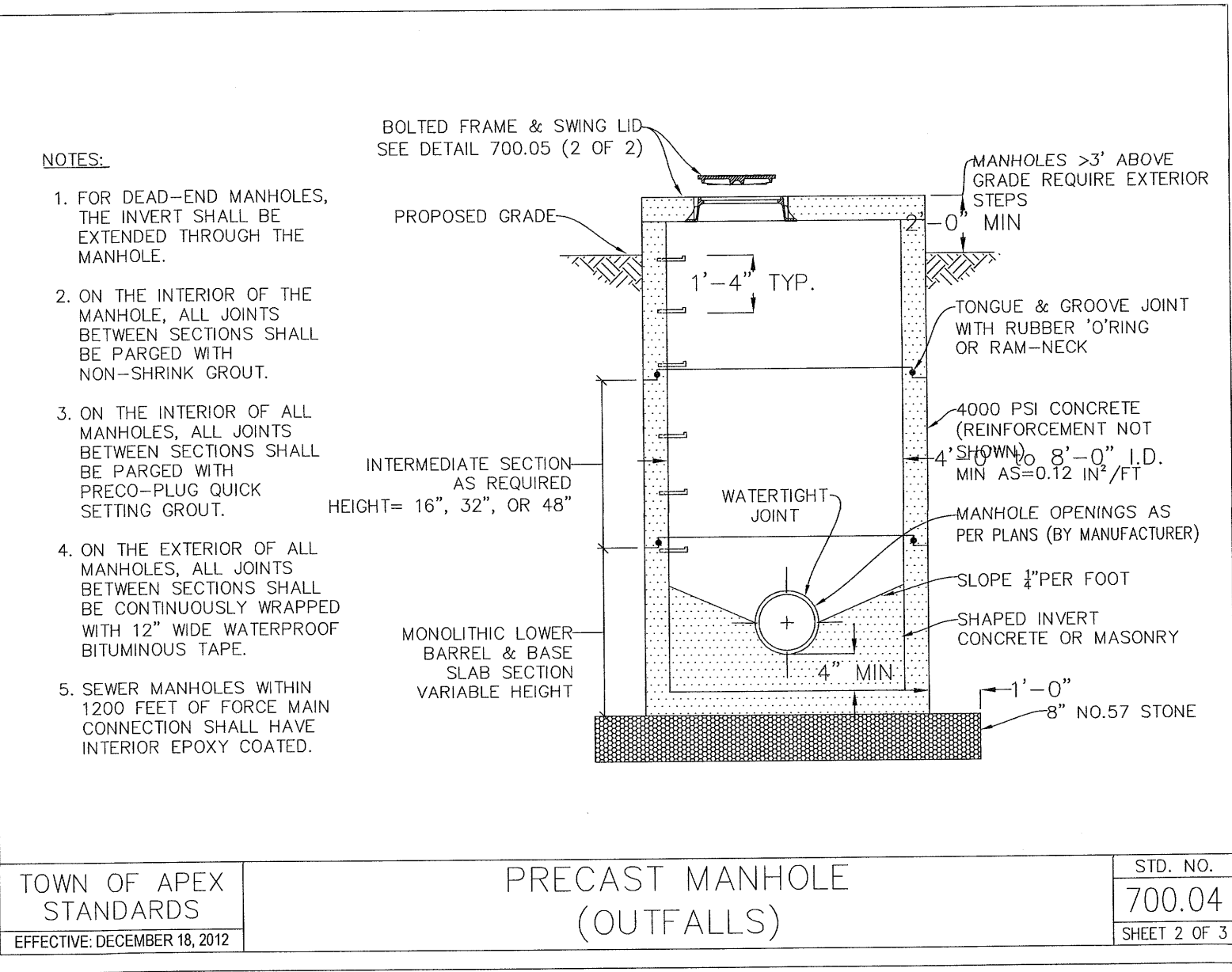
STD. NO. 700.01  
SHEET 1 OF 1



TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 18, 2012

**FORCE MAIN BACKFILLING**

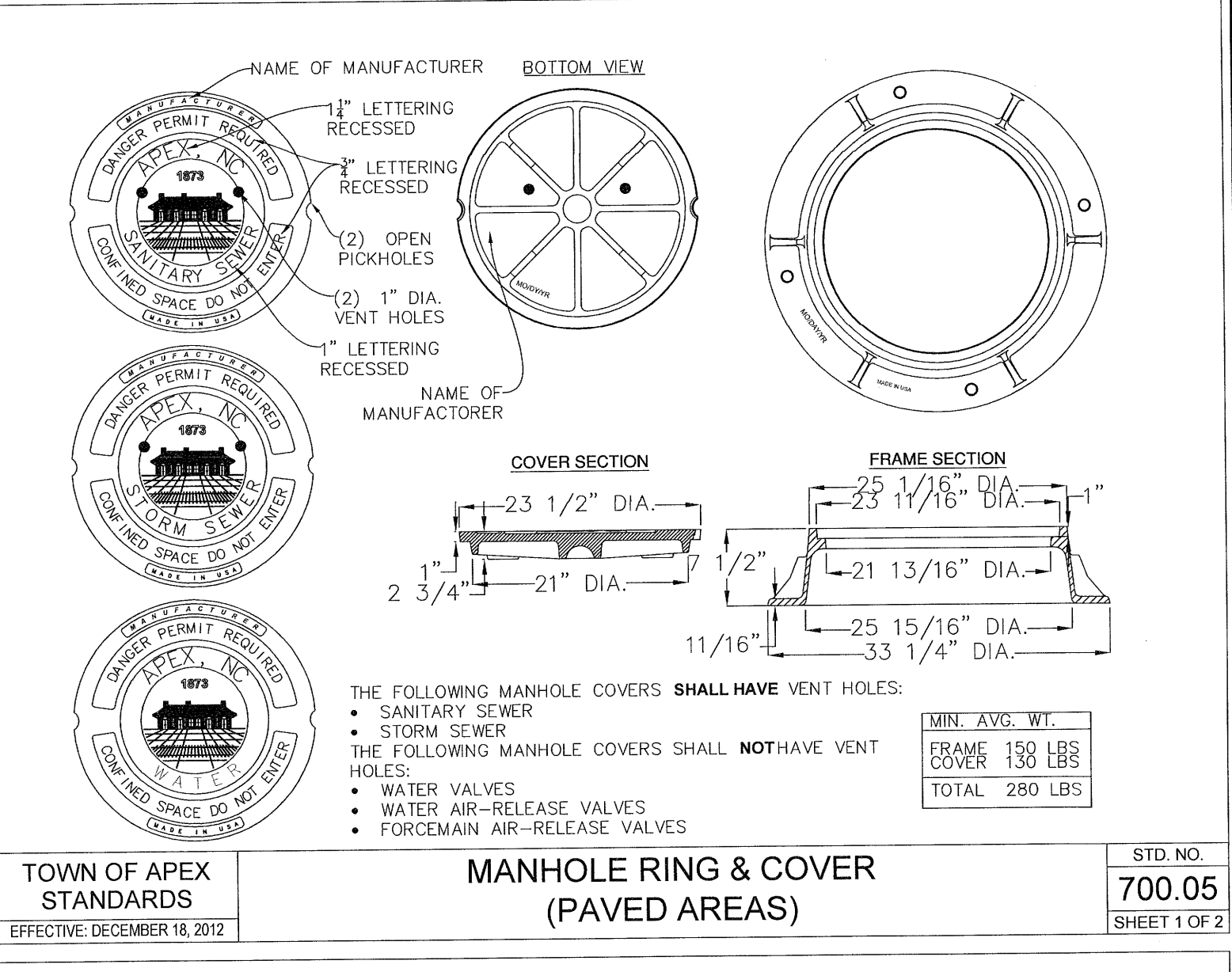
STD. NO. 700.04  
SHEET 2 OF 3



TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 18, 2012

**PRECAST MANHOLE (OUTFALLS)**

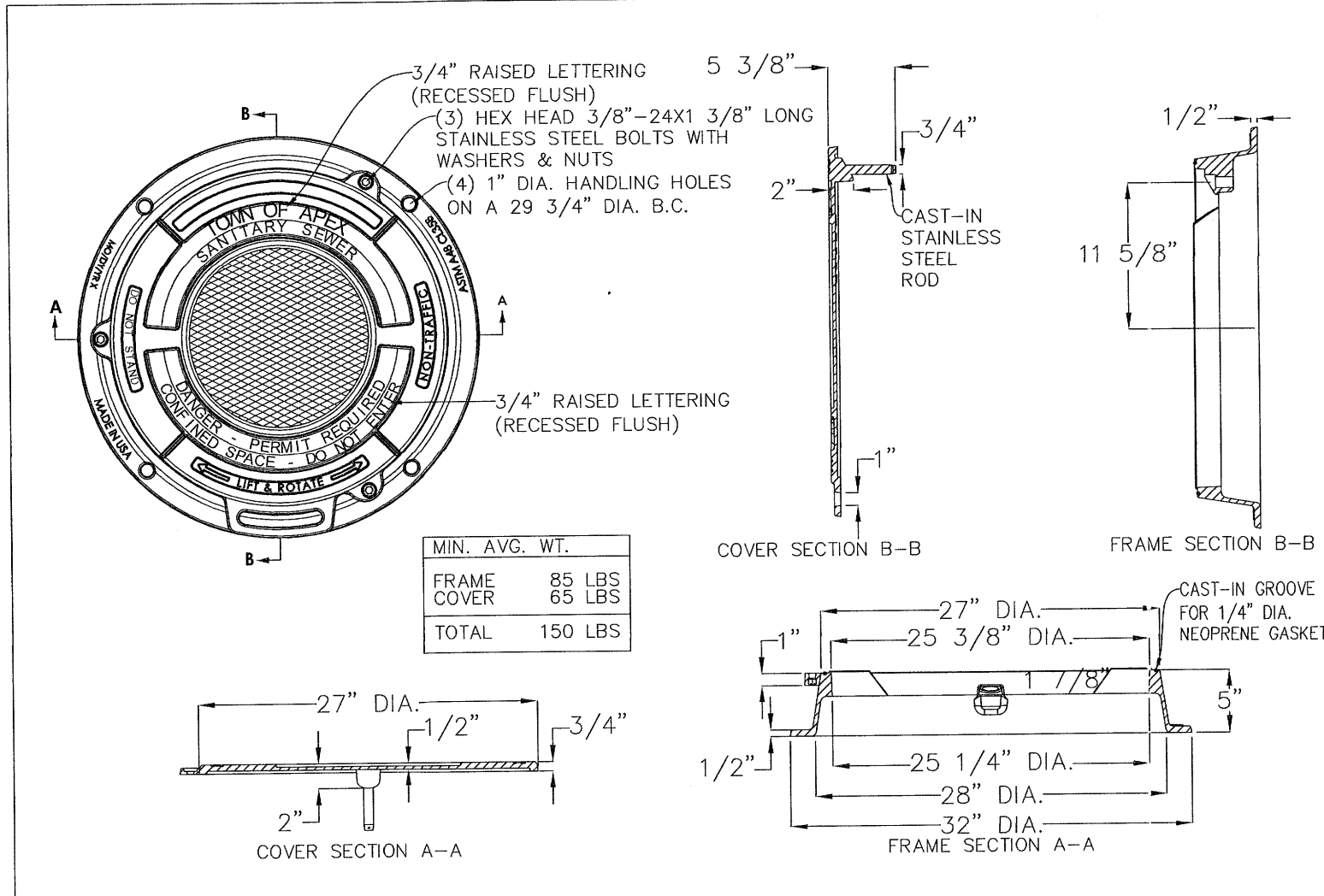
STD. NO. 700.04  
SHEET 2 OF 3



TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 18, 2012

**MANHOLE RING & COVER (PAVED AREAS)**

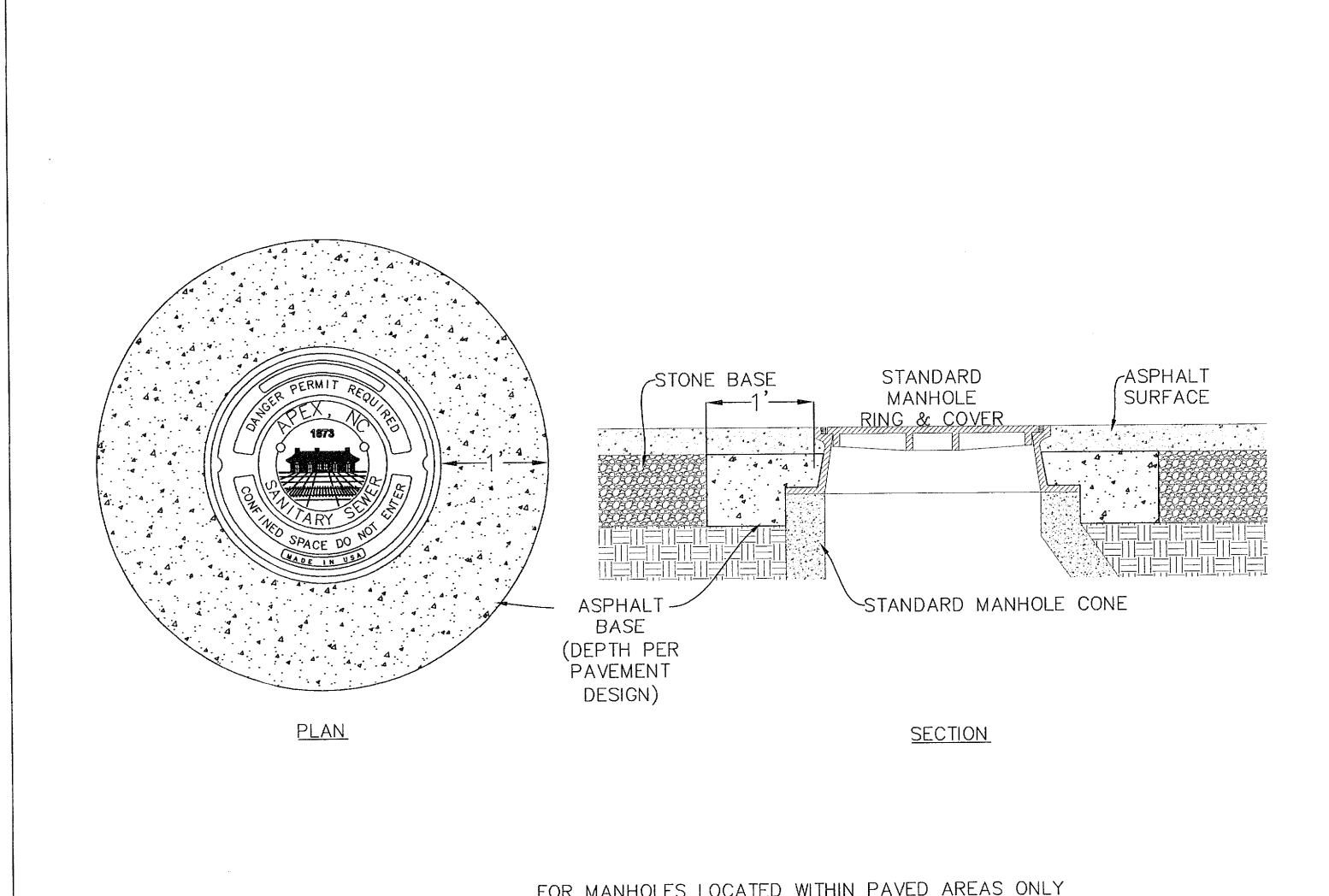
STD. NO. 700.05  
SHEET 1 OF 2



TOWN OF APEX STANDARDS  
EFFECTIVE: NOVEMBER 20, 2007

**MANHOLE RING & ROTATING COVER FOR WATERTIGHT MANHOLES (NON-TRAFFIC ONLY)**

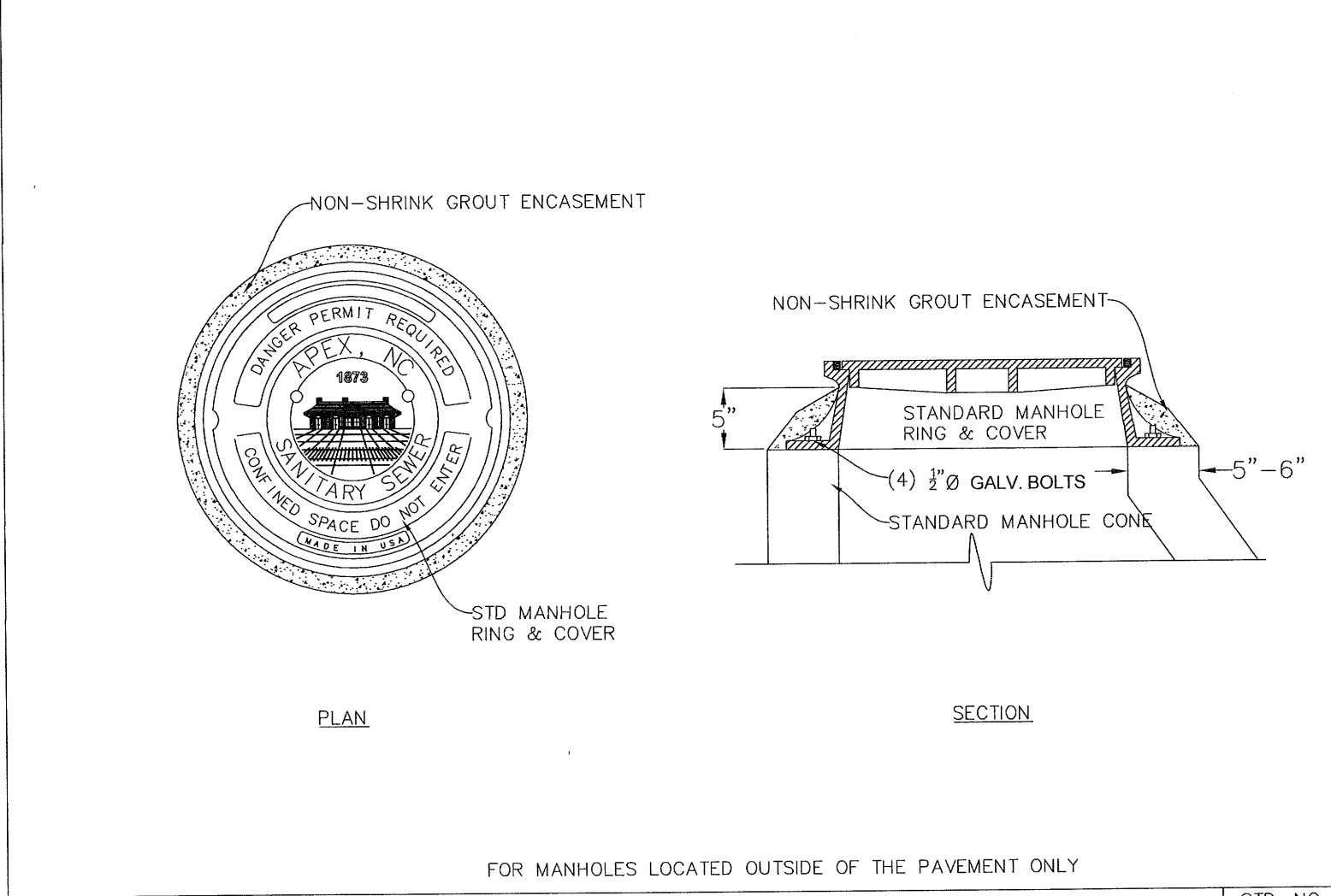
STD. NO. 700.05  
SHEET 2 OF 2



TOWN OF APEX STANDARDS  
EFFECTIVE: JANUARY 22, 2014

**MANHOLE RING & COVER ENCASEMENT**

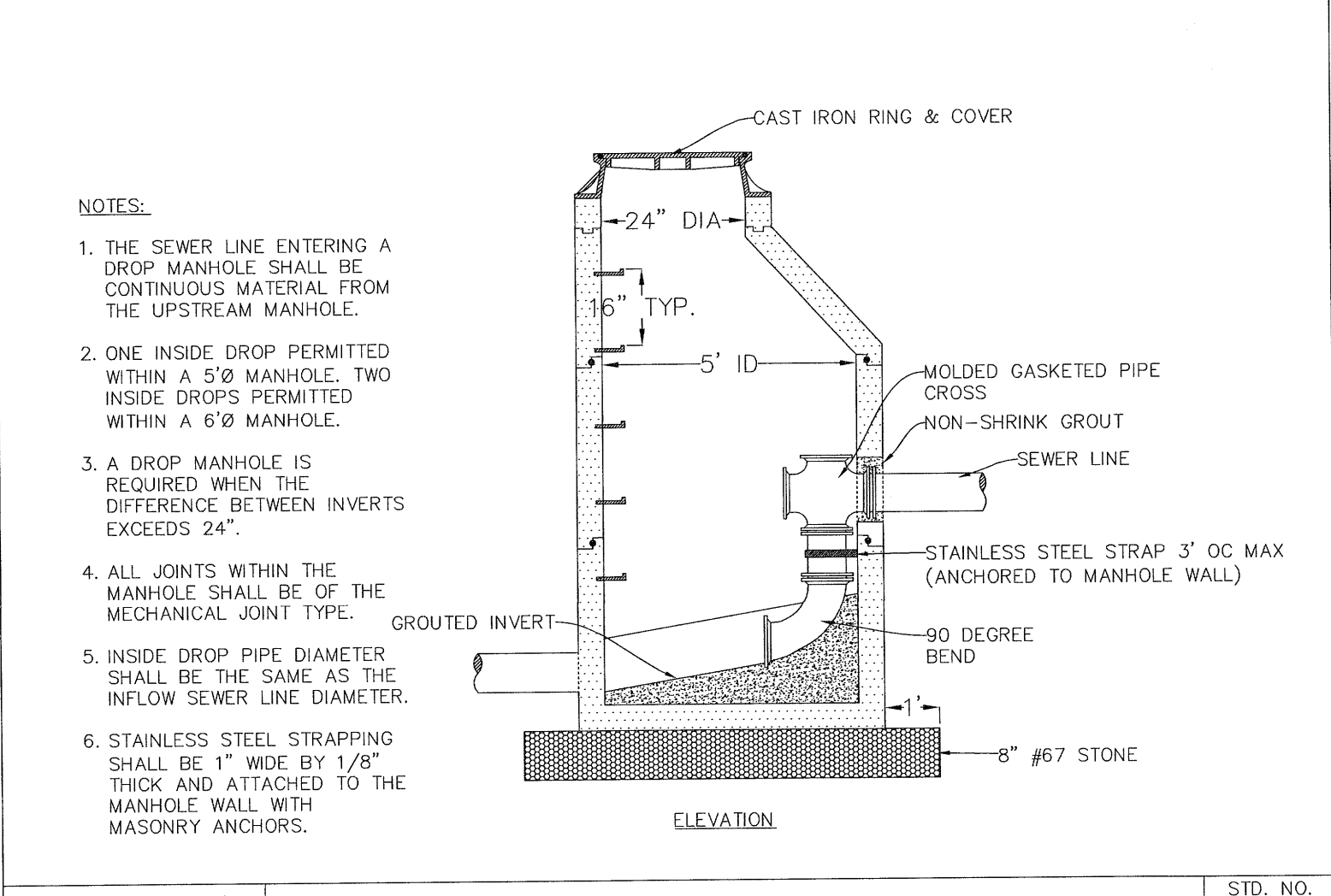
STD. NO. 700.06  
SHEET 1 OF 2



TOWN OF APEX STANDARDS  
EFFECTIVE: NOVEMBER 20, 2007

**MANHOLE RING & COVER ENCASEMENT**

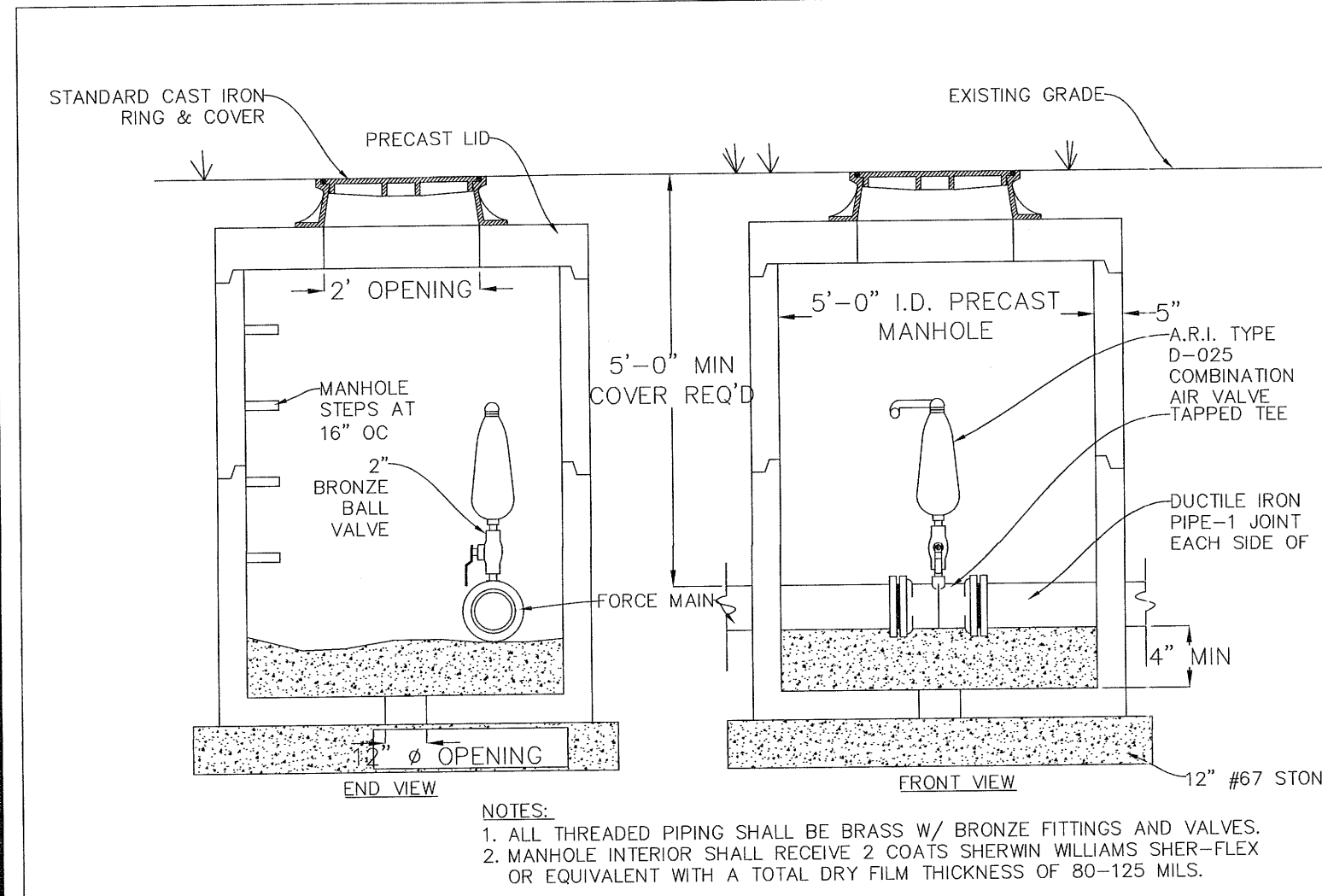
STD. NO. 700.06  
SHEET 2 OF 2



TOWN OF APEX STANDARDS  
EFFECTIVE: JULY 21, 2015

**DROP MANHOLE**

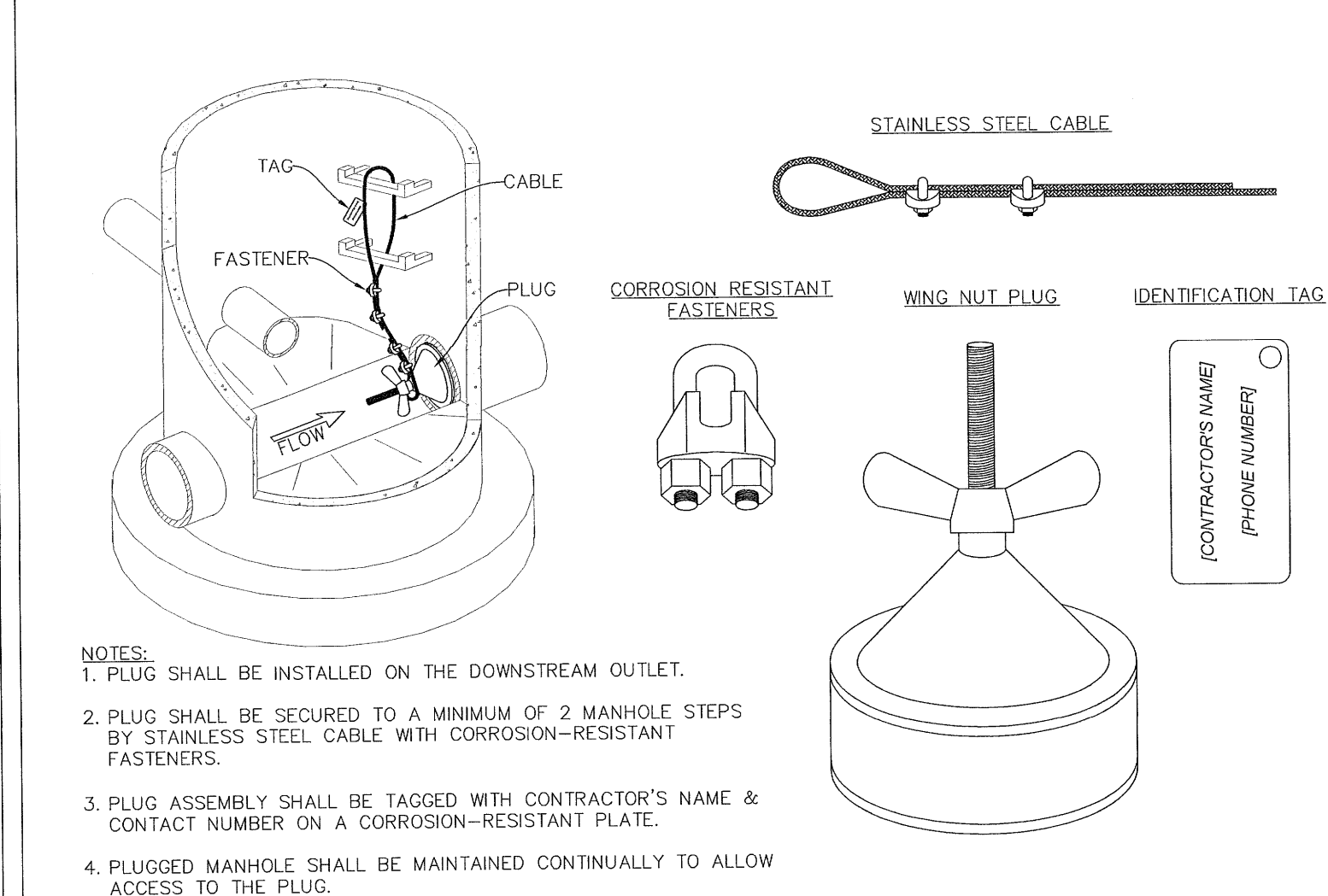
STD. NO. 700.07  
SHEET 1 OF 1



TOWN OF APEX STANDARDS  
EFFECTIVE: NOVEMBER 20, 2007

**AIR RELEASE MANHOLE FOR SANITARY SEWER FORCE MAINS**

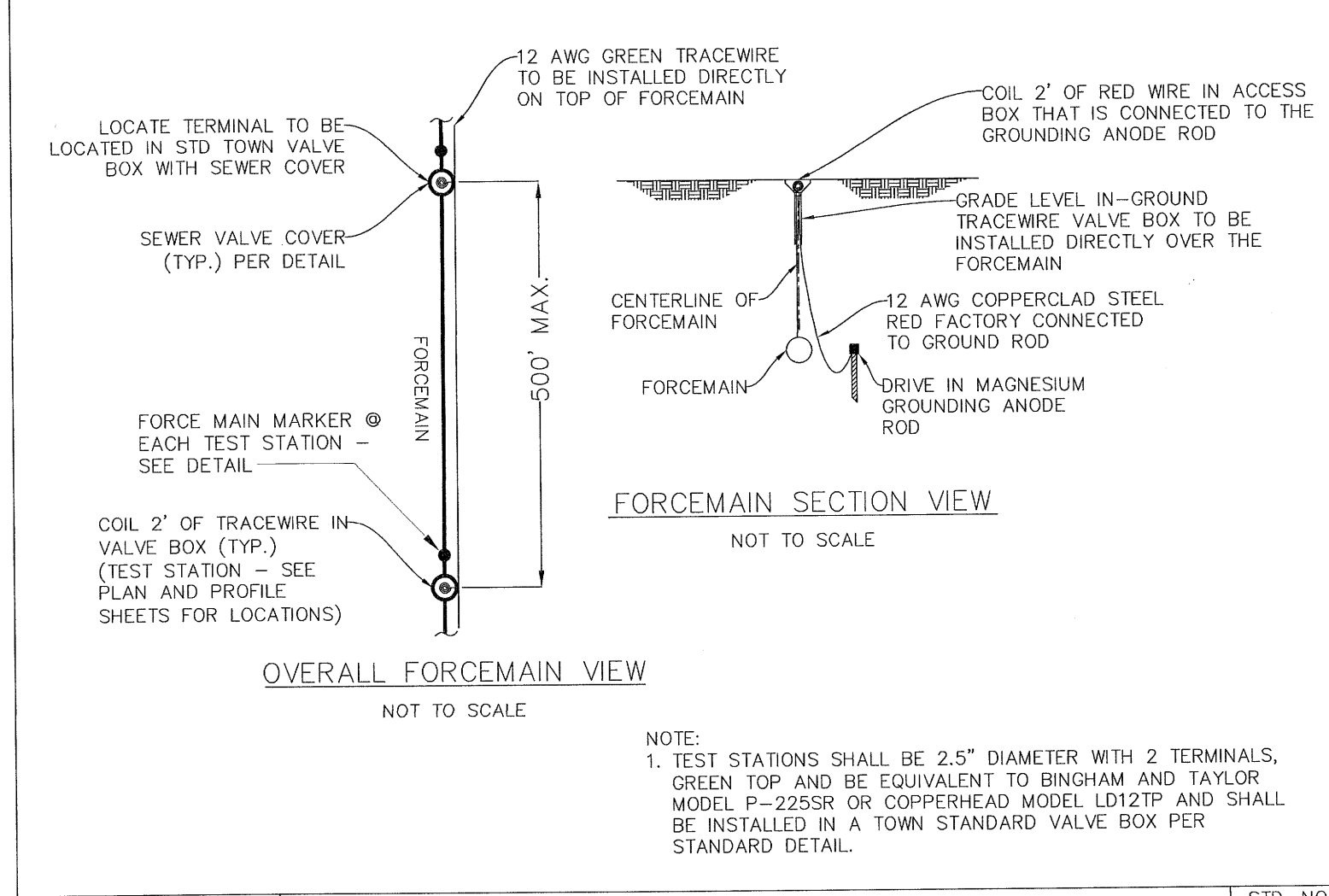
STD. NO. 700.09  
SHEET 1 OF 1



TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 21, 2010

**SANITARY SEWER PLUG INSTALLATION**

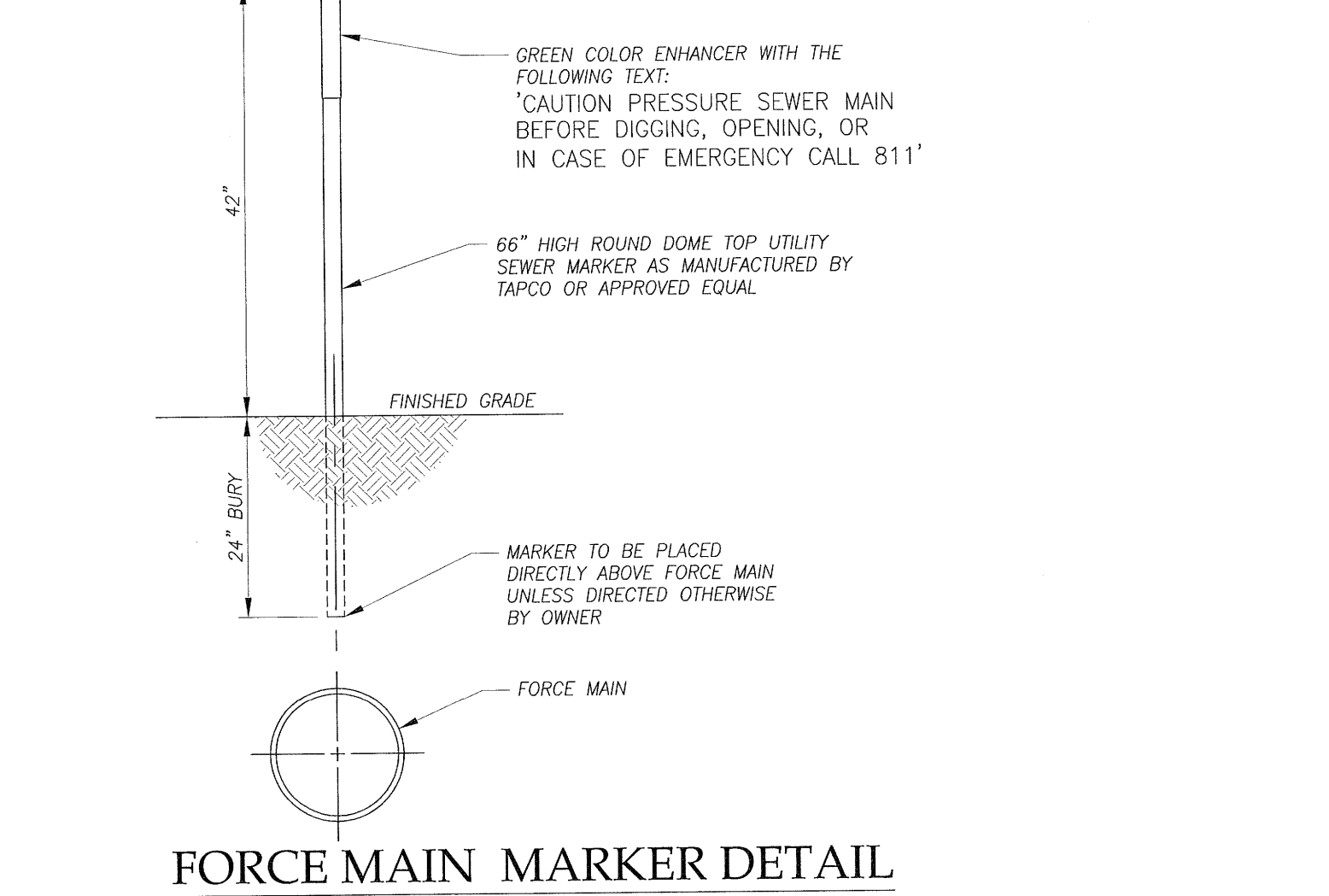
STD. NO. 700.16  
SHEET 1 OF 1



TOWN OF APEX STANDARDS  
EFFECTIVE: MARCH 6, 2018

**FORCE MAIN TRACER WIRE**

STD. NO. 800.01  
SHEET 1 OF 1



TOWN OF APEX STANDARDS  
EFFECTIVE: MARCH 6, 2018

**FORCE MAIN MARKER DETAIL**

STD. NO. 800.01  
SHEET 1 OF 1

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

PR	3/23/19	N/A	Date
PW-Transportation		WR - Stormwater	Date
N/A		Planning	Date
DR	3/15/19	NA	Date
WR - Utility Engineering		Planning - Transportation	Date
N/A		Fire	Date
N/A		Parks, Recreation & Cultural Res.	Date
WR - S & E			Date

**Issued for Bid Only**

APR 11 2019 10:30 AM  
DIEHL & PHILLIPS, P.A.  
6127 119

DESIGN: JFP  
DRAWN: JLB  
CHECKED: JFP  
SCALE: AS SHOWN  
FILE: MCBPS-06

DESIGNER: DIEHL & PHILLIPS, P.A.  
CONSULTING ENGINEERS - I.C. NO. C-0465  
1500 PINEY PLAINS RD., SUITE 200  
CARY, N.C. 27518 • (919) 467-9972

MIDDLE CREEK REGIONAL  
PUMP STATION, FORCE MAIN, & INTERCEPTOR  
NEW INVESTMENTS, LLC  
APEX, NORTH CAROLINA

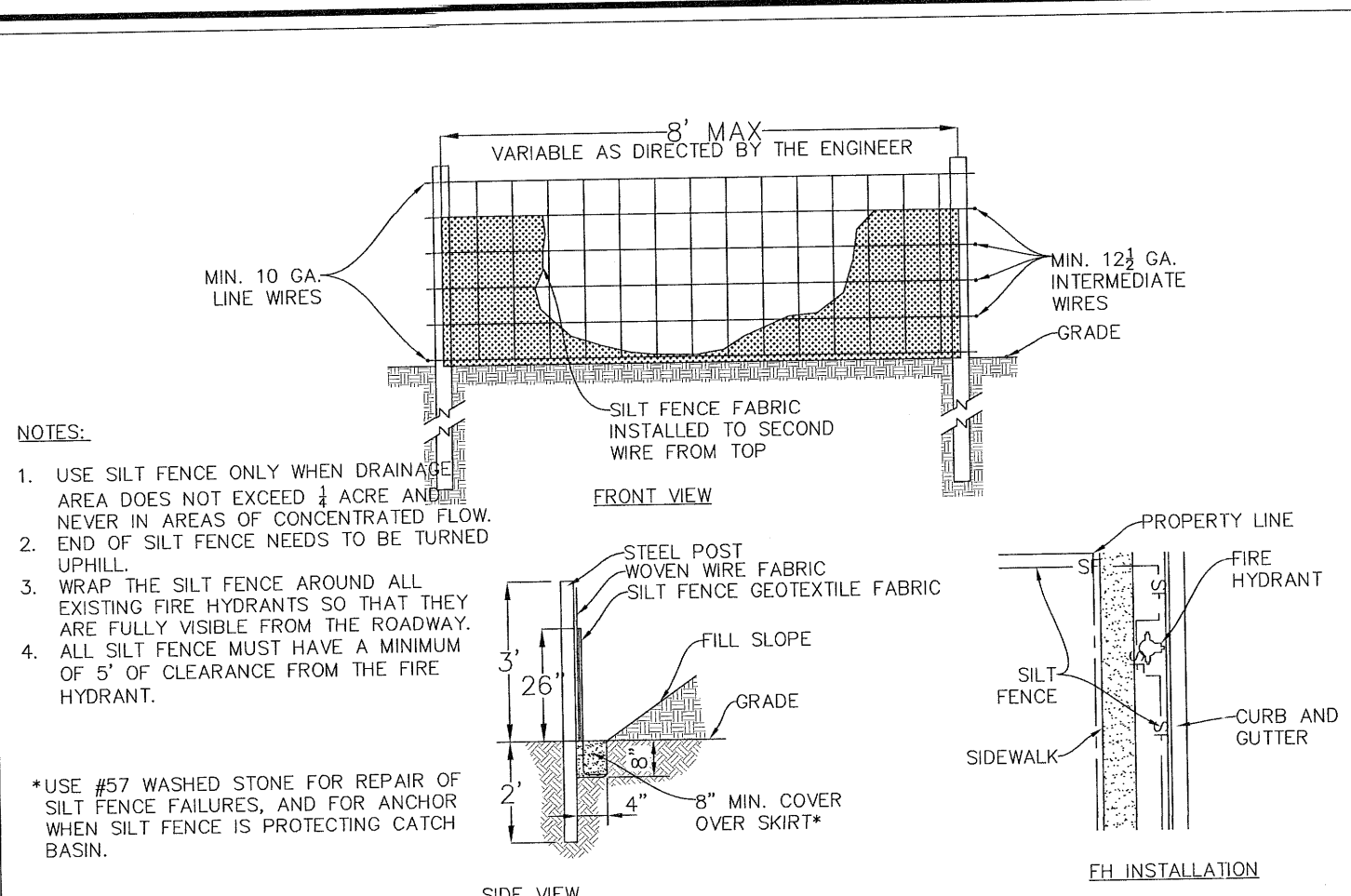
SEWER DETAILS - CONTRACTS 1 & 2

SHEET 28 OF 33

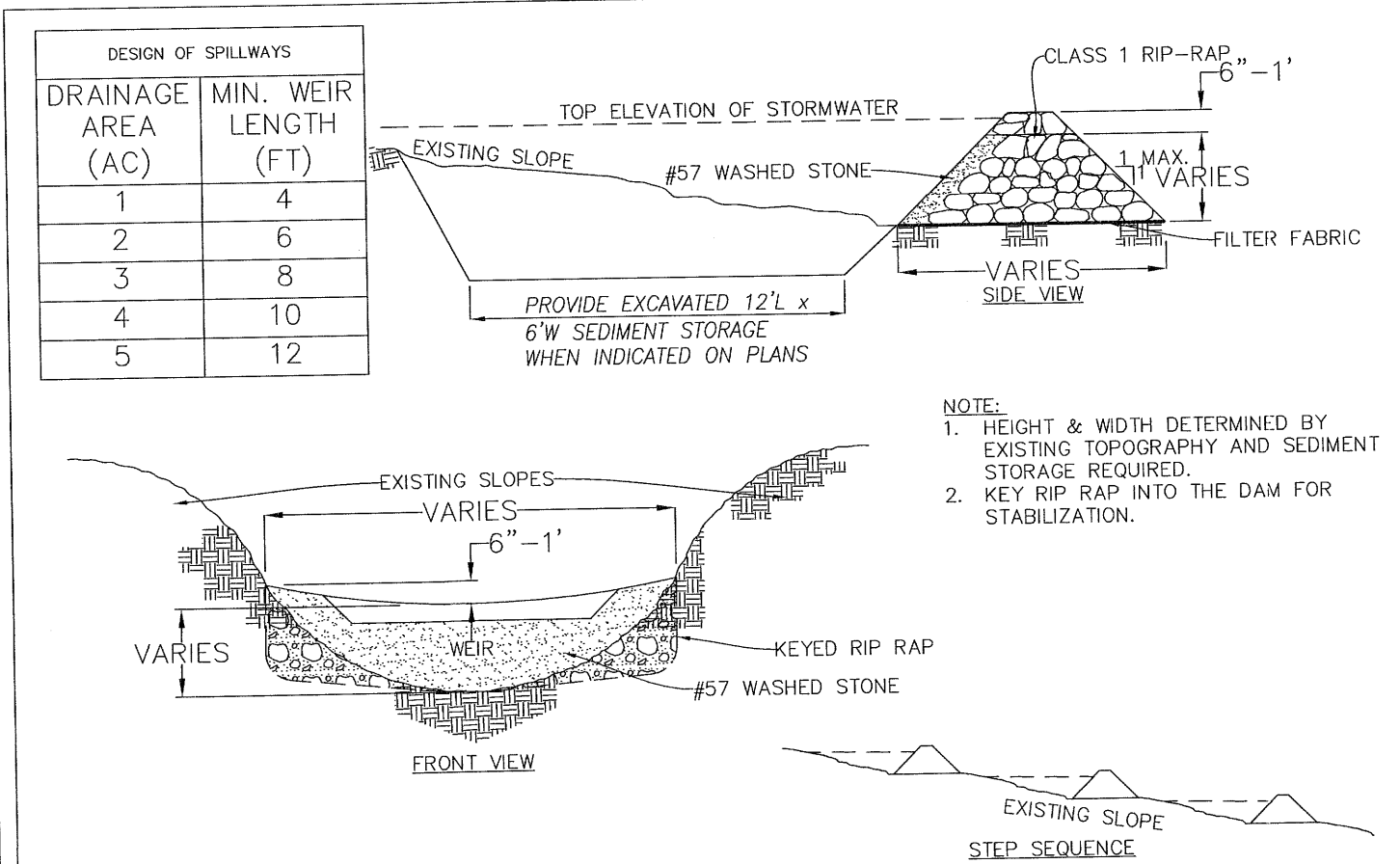




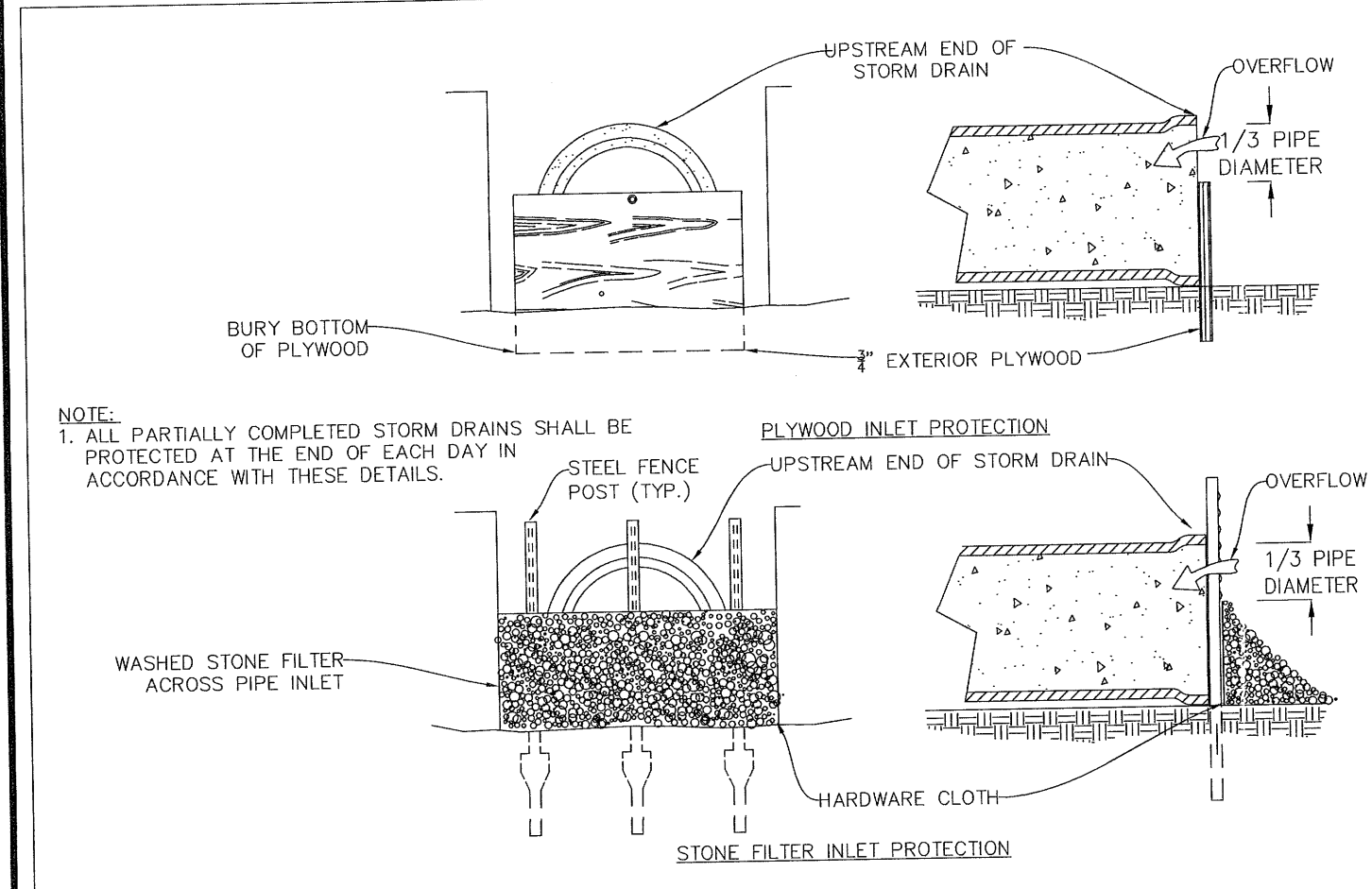




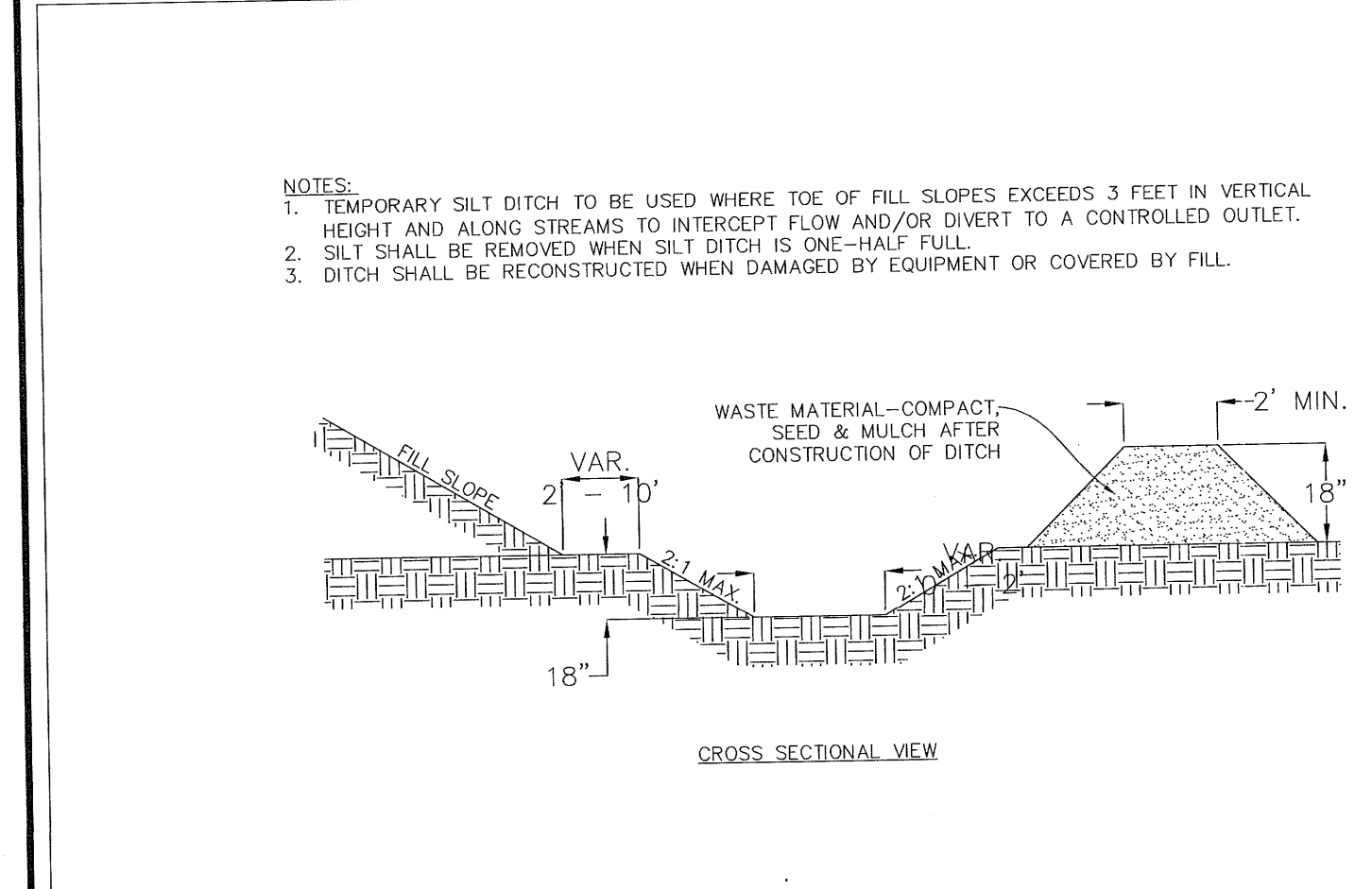
TOWN OF APEX STANDARDS  
EFFECTIVE: JANUARY 20, 2015  
TEMPORARY SILT FENCE  
STD. NO. 400.01  
SHEET 1 OF 1



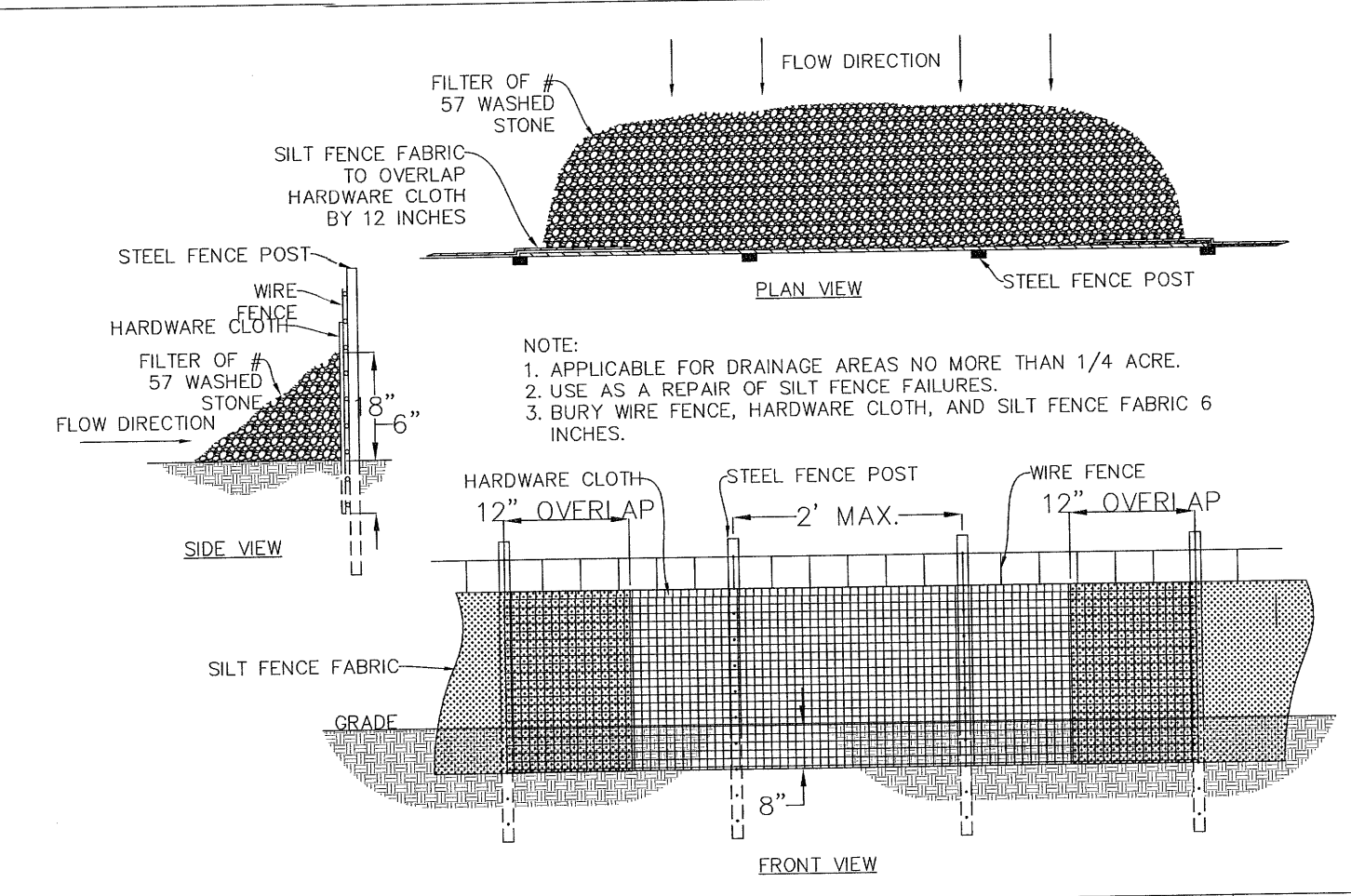
TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 3, 2002  
CHECK DAM  
STD. NO. 400.05  
SHEET 1 OF 1



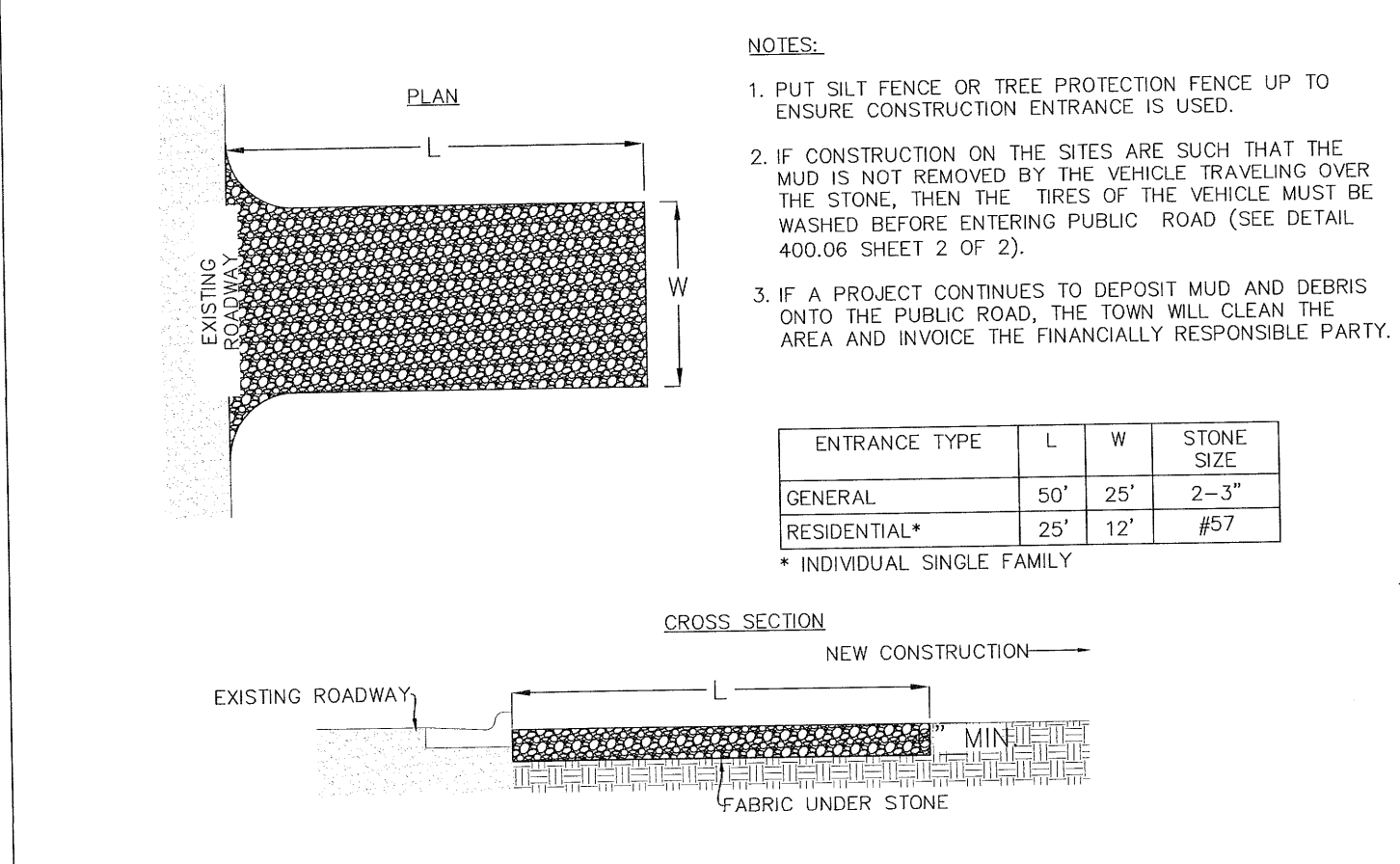
TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 3, 2002  
PIPE INLET PROTECTION (PLYWOOD & STONE)  
STD. NO. 400.10  
SHEET 1 OF 1



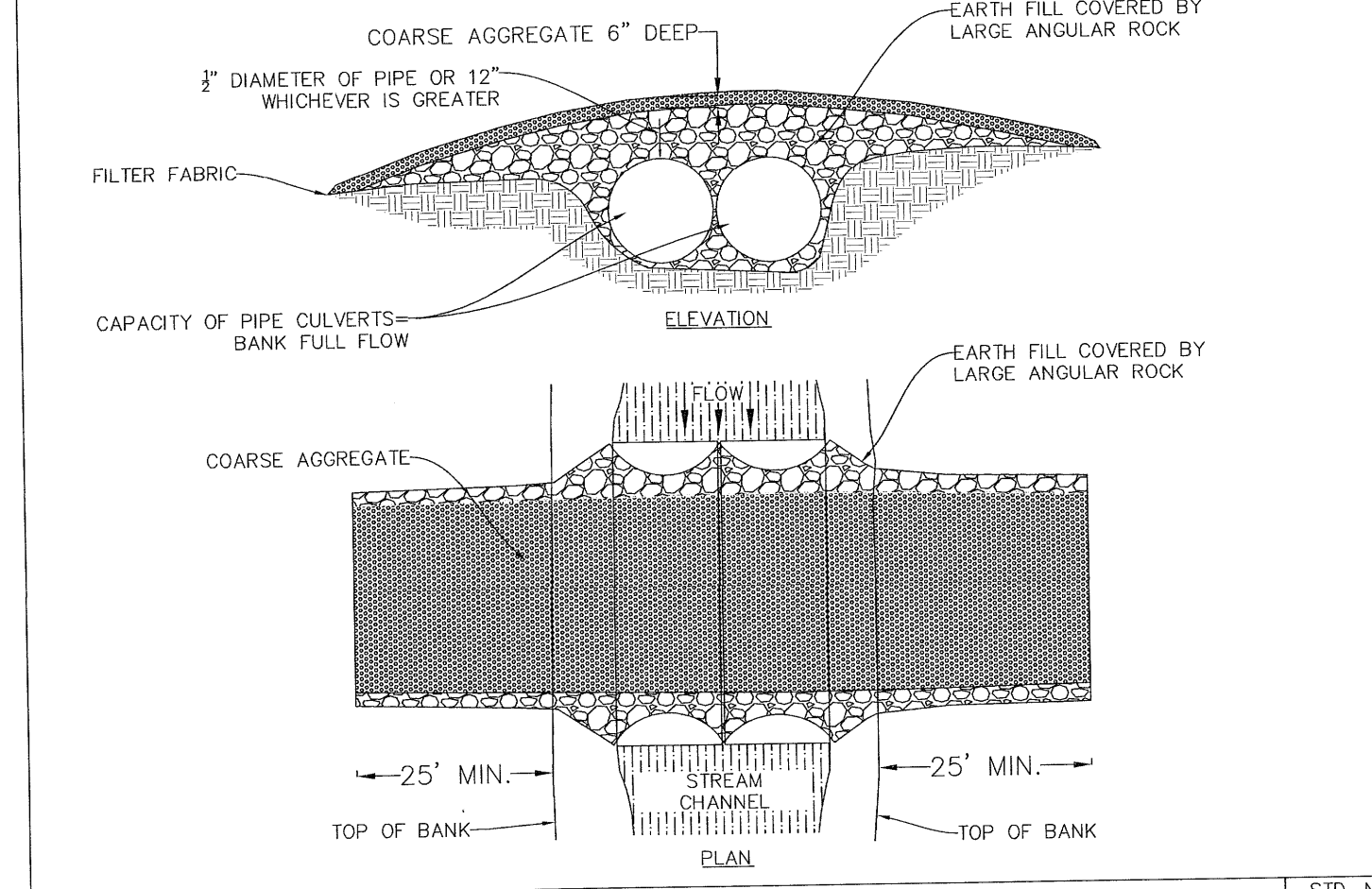
TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 3, 2002  
TEMPORARY SILT DITCH  
STD. NO. 400.16  
SHEET 1 OF 1



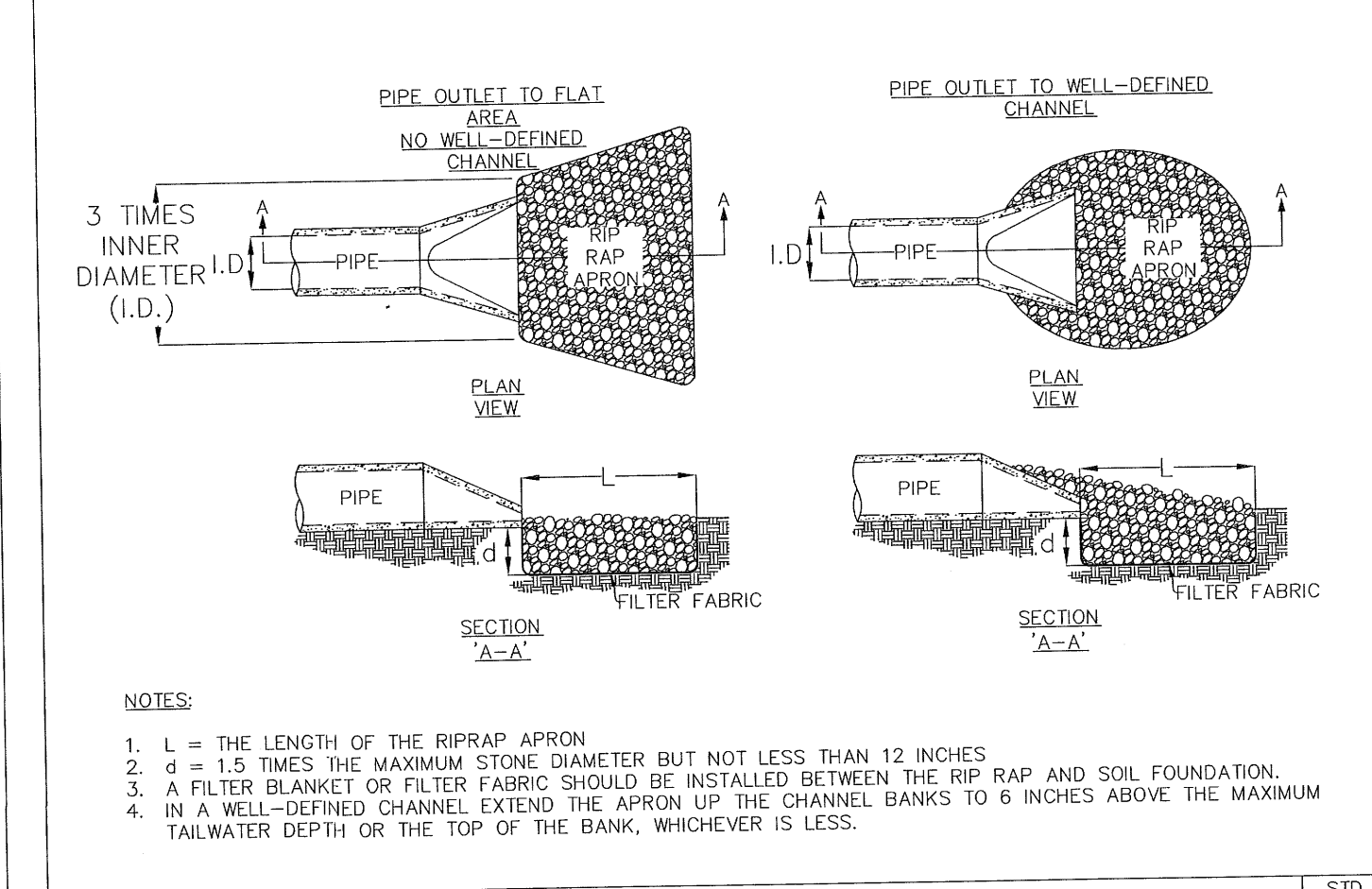
TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 20, 2010  
TEMPORARY SILT FENCE OUTLET  
STD. NO. 400.02  
SHEET 1 OF 1



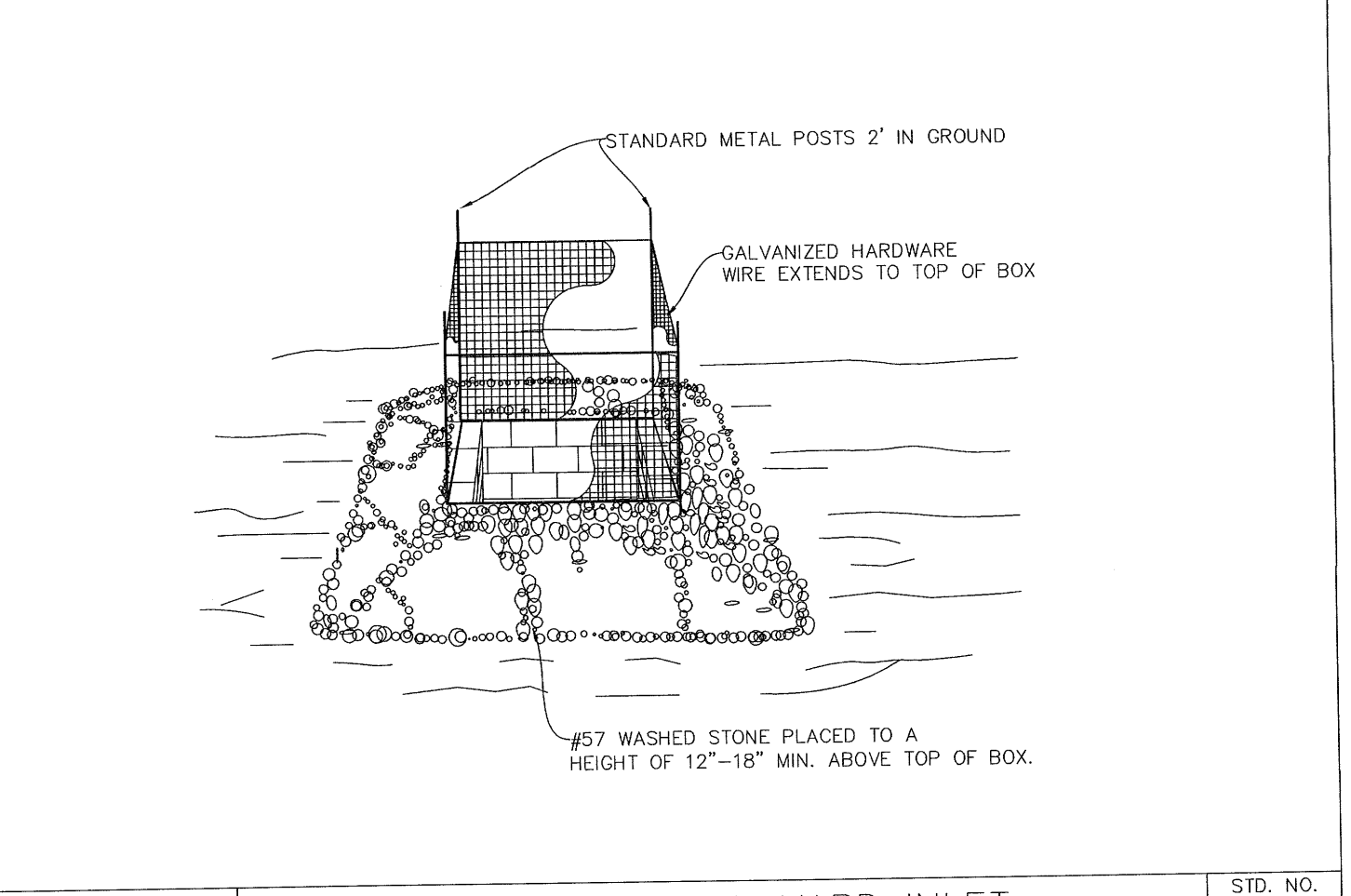
TOWN OF APEX STANDARDS  
EFFECTIVE: JANUARY 20, 2015  
CONSTRUCTION ENTRANCE  
STD. NO. 400.06  
SHEET 1 OF 2



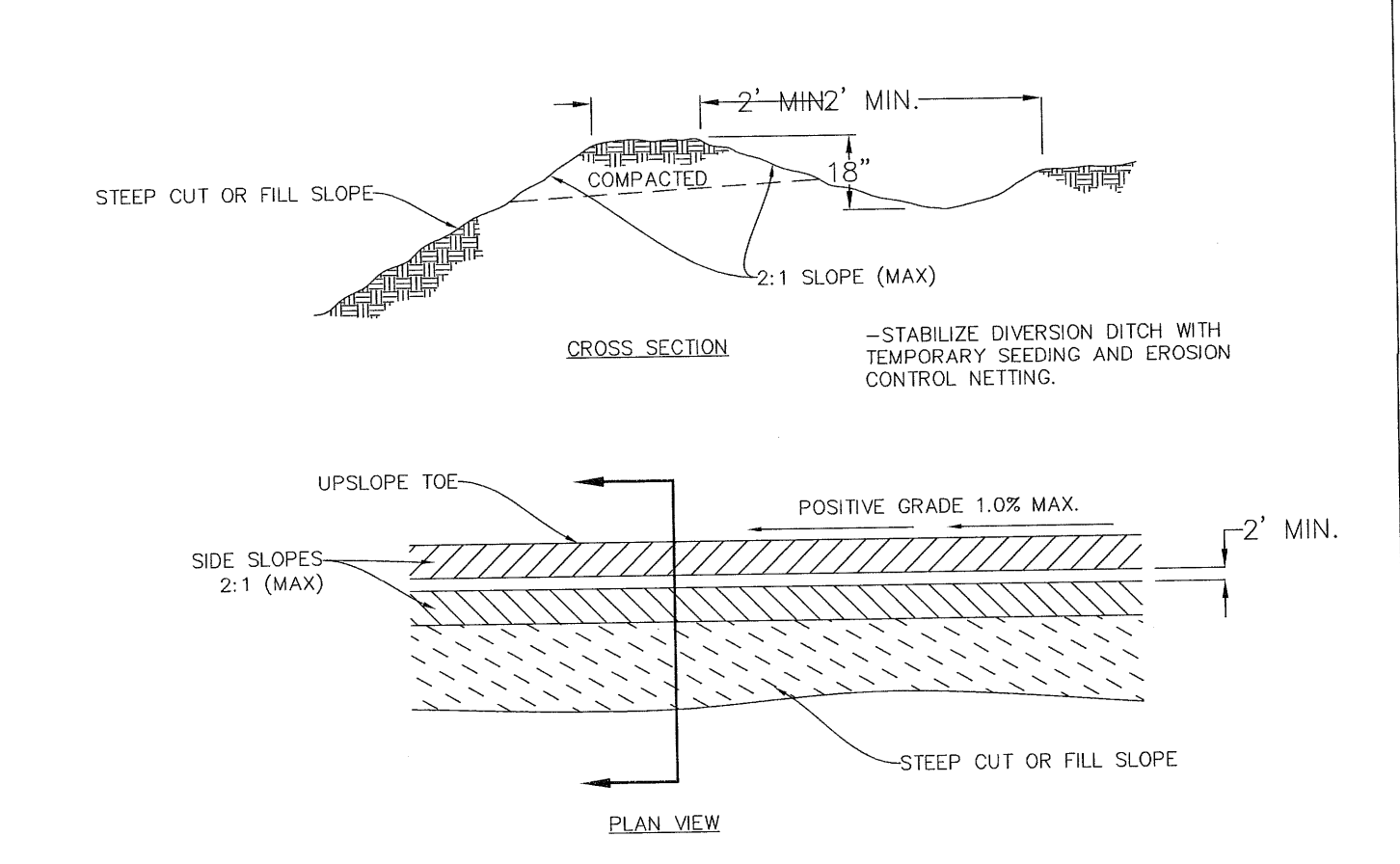
TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 3, 2002  
TEMPORARY STREAM CROSSING  
STD. NO. 400.11  
SHEET 2 OF 2



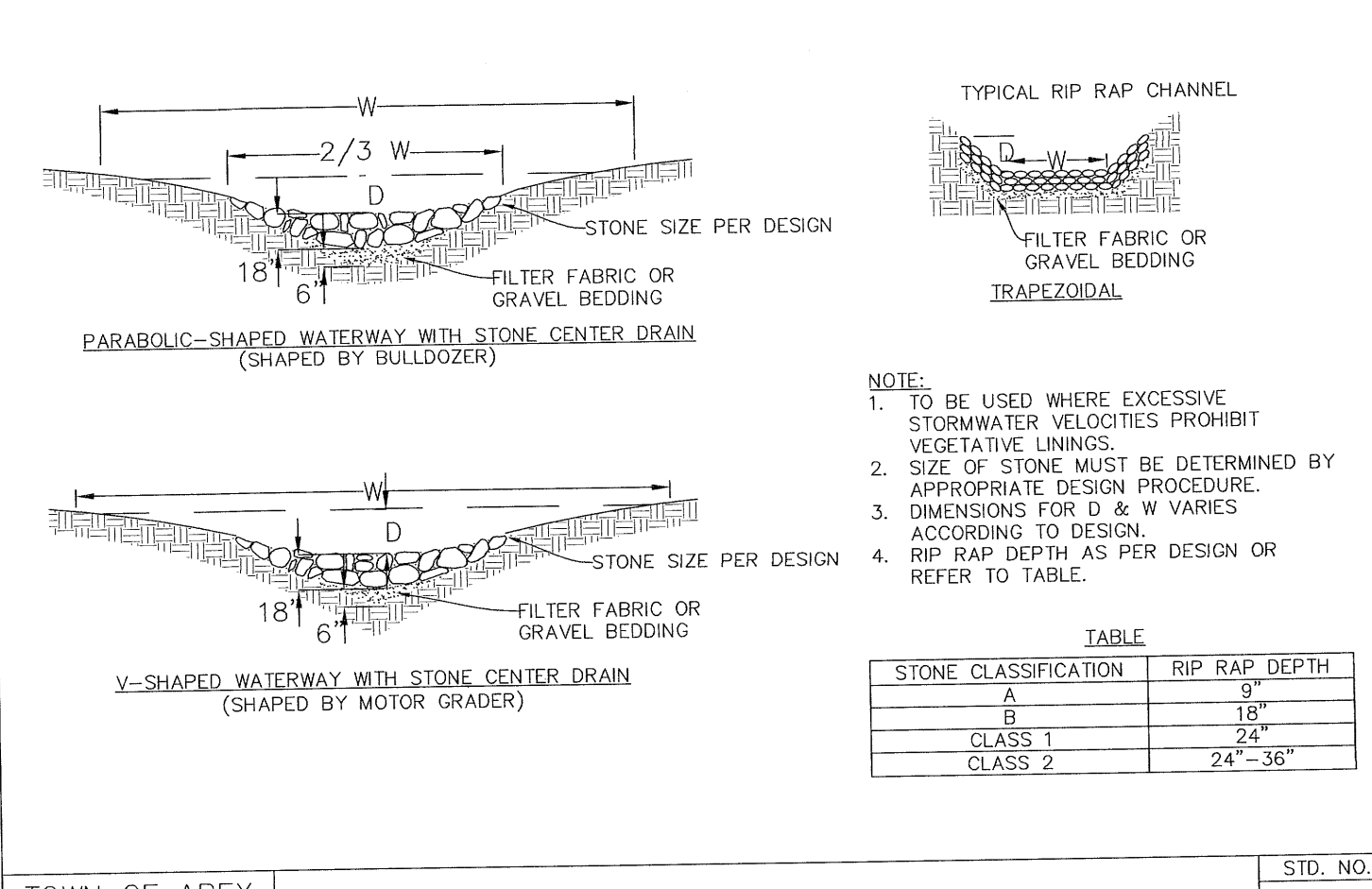
TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 18, 2002  
PIPE OUTLET  
STD. NO. 400.18  
SHEET 1 OF 1



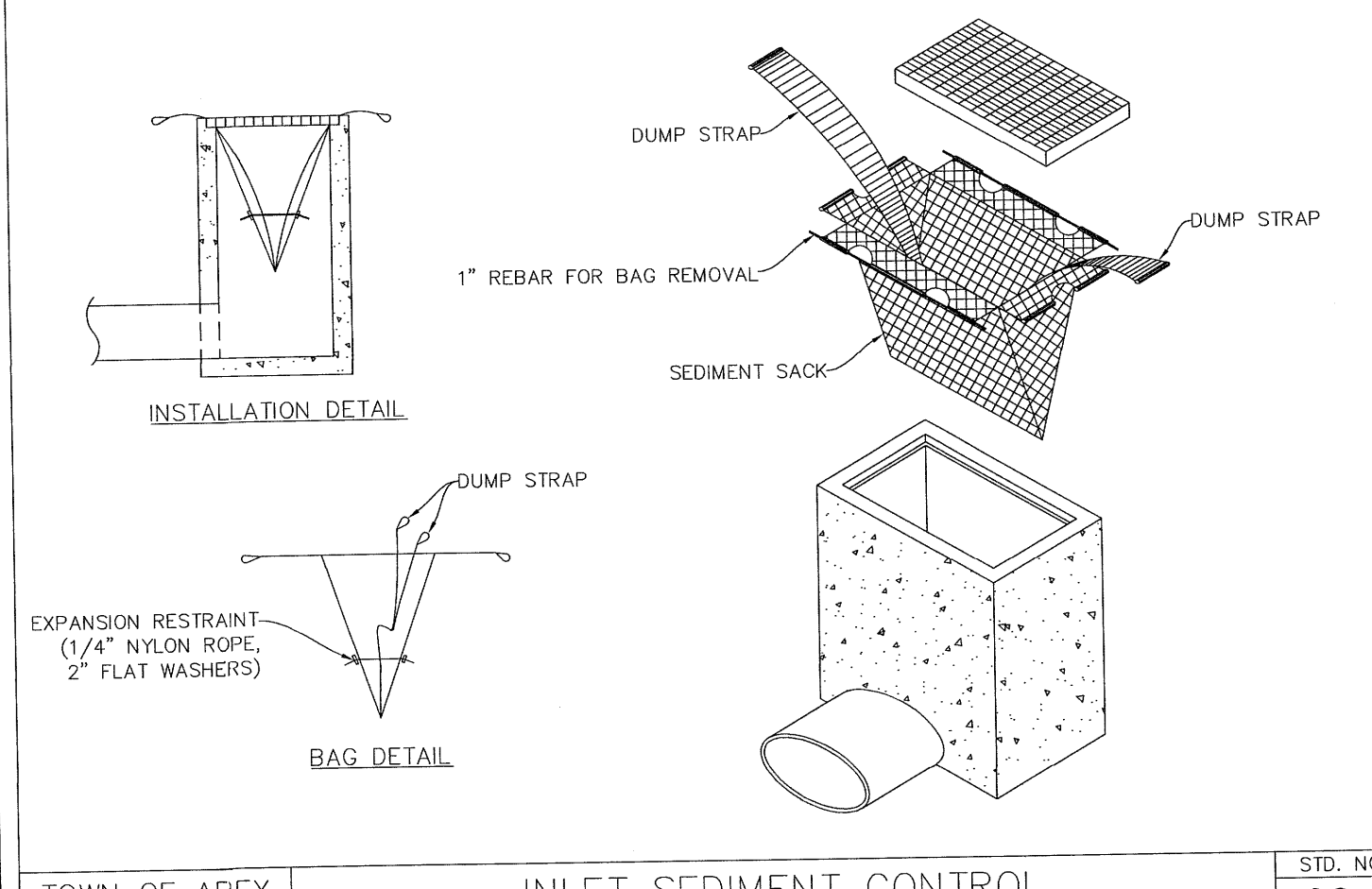
TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 3, 2002  
CATCH BASIN & YARD INLET PROTECTION  
STD. NO. 400.04  
SHEET 1 OF 1



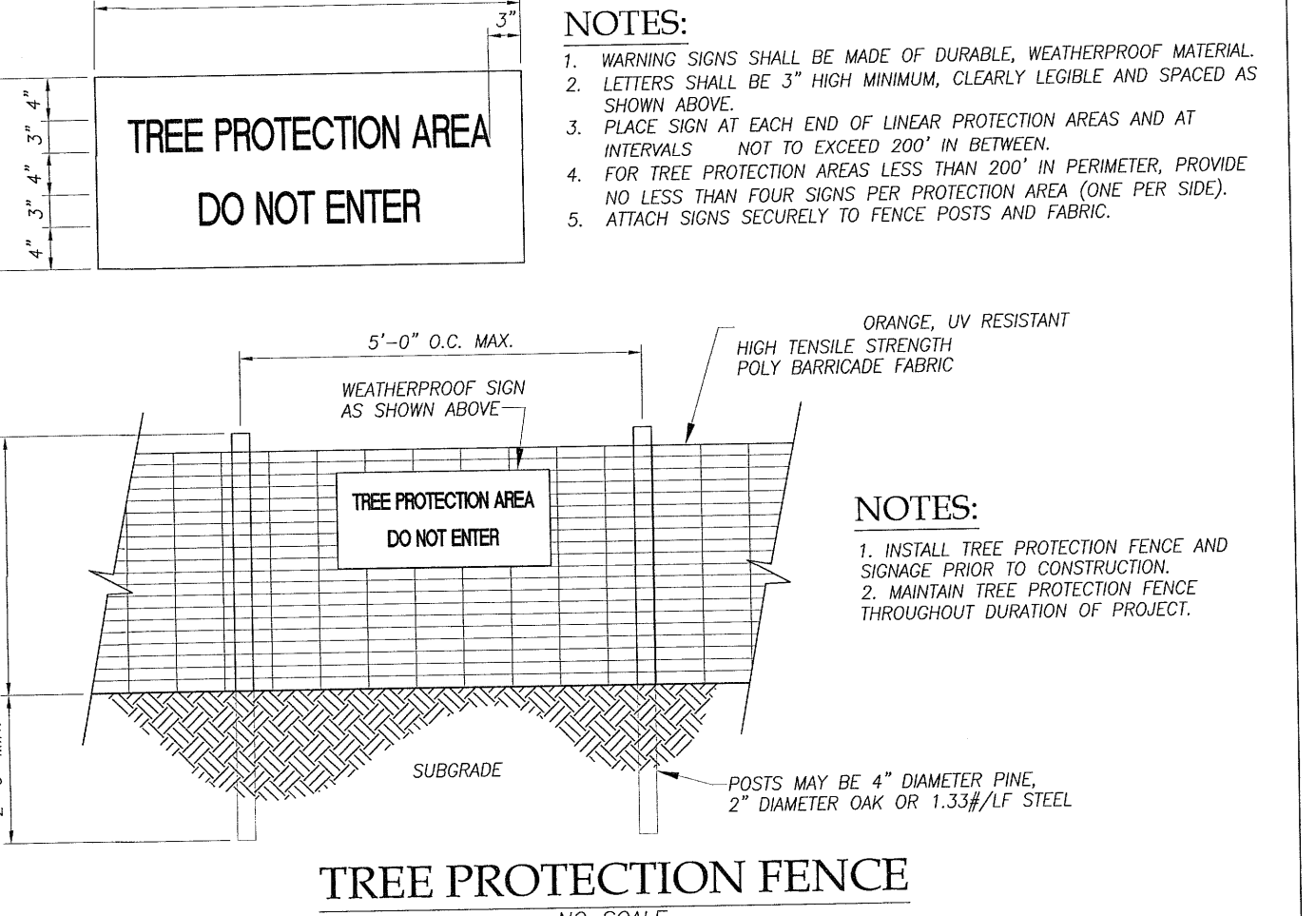
TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 3, 2002  
DIVERSION DITCH  
STD. NO. 400.07  
SHEET 1 OF 1



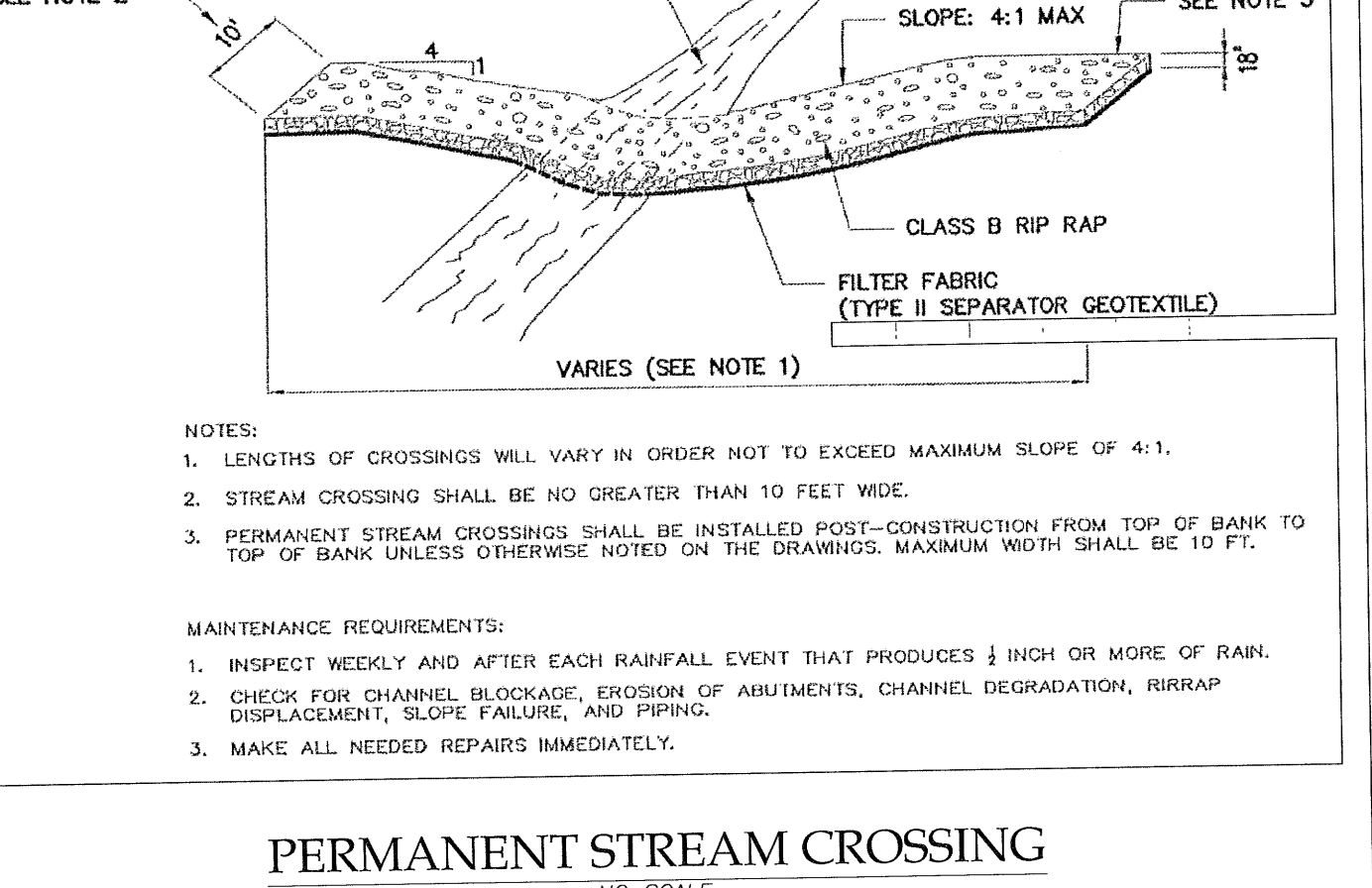
TOWN OF APEX STANDARDS  
EFFECTIVE: DECEMBER 3, 2002  
RIP RAP LINED CHANNELS  
STD. NO. 400.15  
SHEET 1 OF 1



TOWN OF APEX STANDARDS  
EFFECTIVE: JANUARY 20, 2015  
INLET SEDIMENT CONTROL DEVICE  
STD. NO. 400.19  
SHEET 1 OF 1



TREE PROTECTION AREA  
NO SCALE



PERMANENT STREAM CROSSING  
NO SCALE



TREE PROTECTION FENCE  
NO SCALE

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

WA	Date	WR - Stormwater	Date
PW-Transportation		WR - Stormwater	
N/A		Planning	3/19/18
Building Inspections		WR - Utility Engineering	3/14/19
D. Smith	3/15/19	WR - Utility Engineering	3/14/19
N/A		WR - S & E	
N/A		WR - S & E	
		Electric	
		Fire	
		Parks, Recreation & Cultural Res.	

DESIGN: JFP  
DRAWN: JLB  
CHECKED: JFP  
SCALE: AS SHOWN  
FILE: MCBS-Def

DIEHL & PHILLIPS, P.A.  
CONSULTING ENGINEERS - LIC. NO. C-0465  
1500 PINEY PLAINS RD., SUITE 200  
CARY, N.C. 27518 • (919) 467-9972

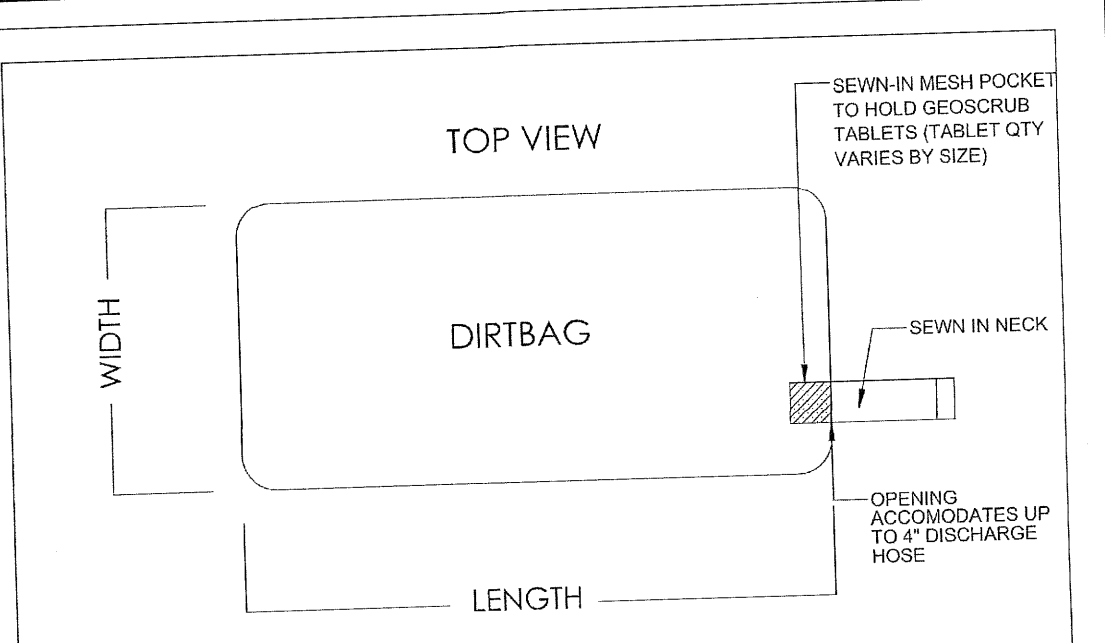
D&P  
MIDDLE CREEK REGIONAL  
PUMP STATION, FORCE MAIN & INTERCEPTOR  
APEX INVESTMENTS, LLC  
APEX, NORTH CAROLINA

EROSION CONTROL DETAILS -  
CONTRACTS 1 & 2

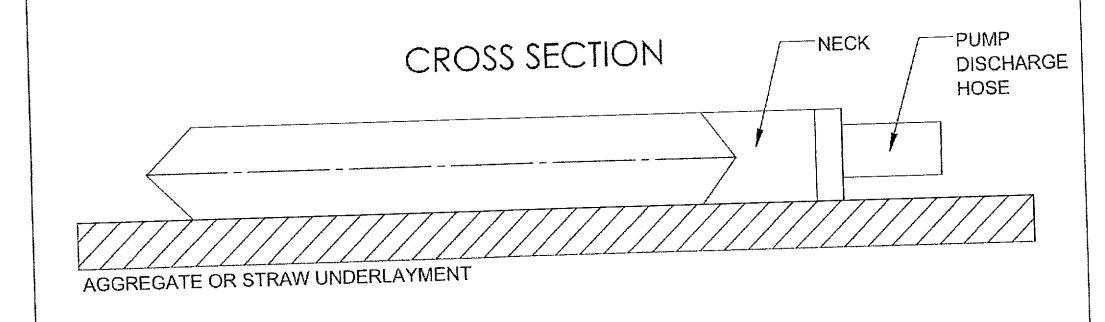
SHEET 30 OF 33

Issued for Bid Only  
3/27/19



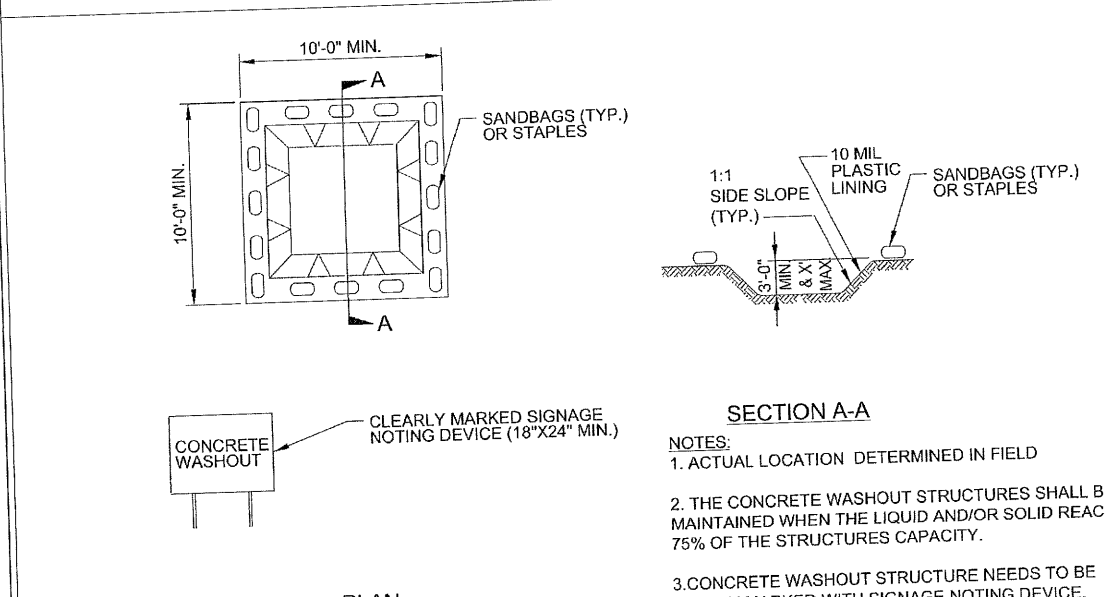


NOTES:  
 1) DIRTBAG TO BE PLACED ON AGGREGATE OR STRAW  
 2) SEAMS MUST BE HIGH STRENGTH DOUBLE STITCHED "J" SEAMS  
 3) SEAM MUST BE TESTED UNDER ASTM D-4884. ACF TEST RESULTS AVAILABLE UPON REQUEST

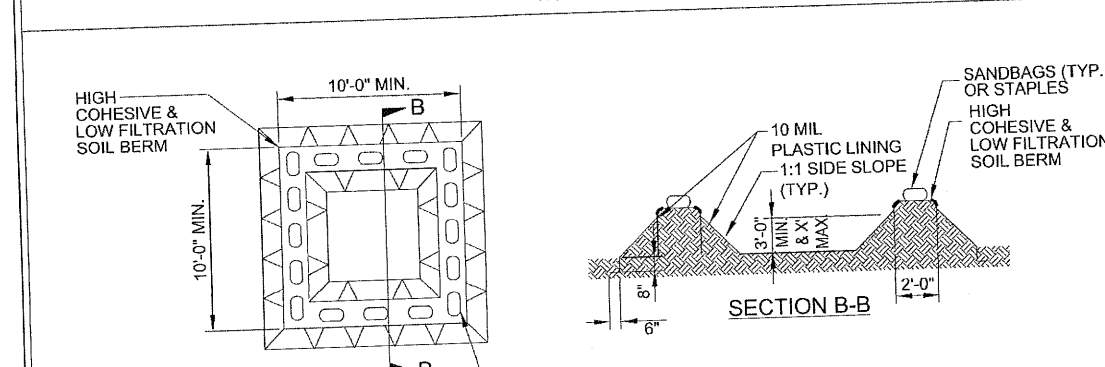


ACF CORPORATE OFFICE:  
 2031 CAUDWELL ROAD  
 ROCKFORD, VA 22254  
 P.O. BOX 448 308  
 WWW.ACFENVIRONMENTAL.COM

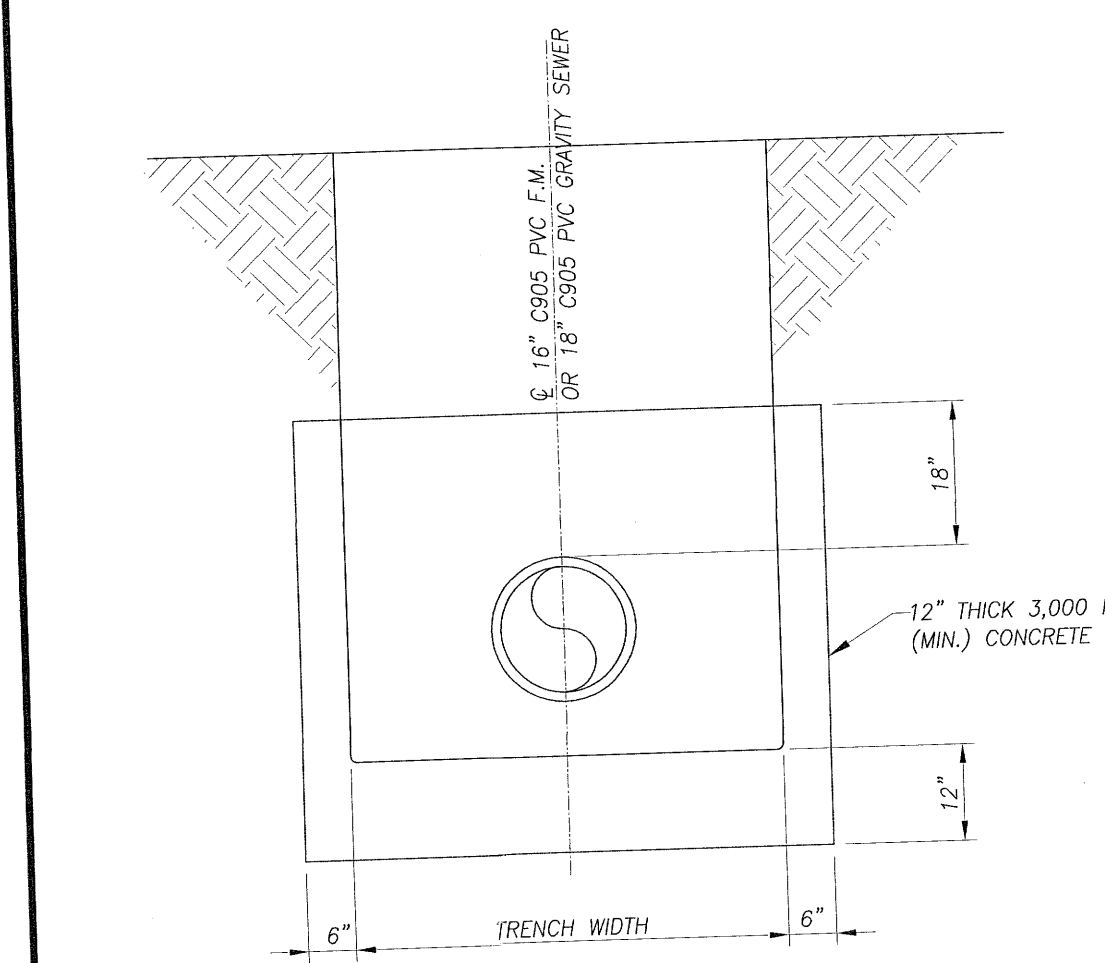
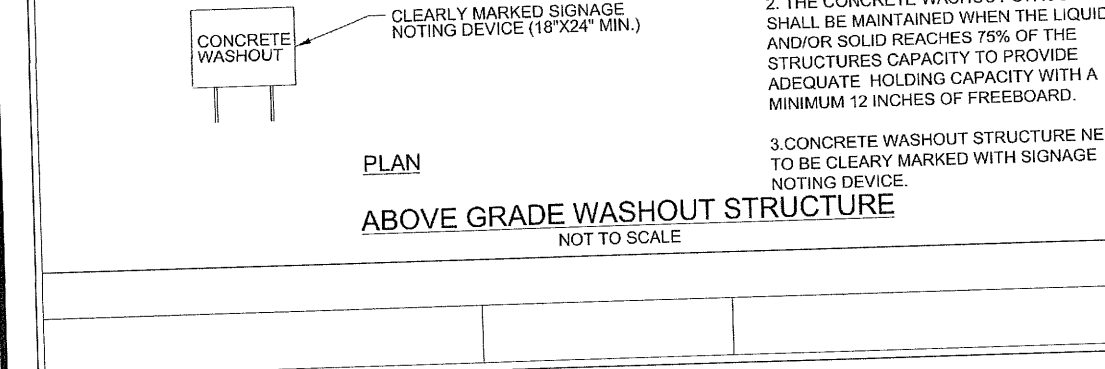
**ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER**



**BELOW GRADE WASHOUT STRUCTURE**



**ABOVE GRADE WASHOUT STRUCTURE**



**WETLANDS ANTI-SEEP COLLAR**  
 NO SCALE

VEGETATIVE PLAN						
Description	Season	Permanent (pounds/acre)	Temporary (pounds/acre)	Seedbed Prep.	Seeding Method	Mulch
Steep Slopes (2:1 to 3:1); low maintenance	Spring or Fall	Tall Fescue (120) Kobe Lespedeza (50)	Tall Fescue (120) Browntop Millet (35)	SP-1	SM-1	MA-1
	Summer		Tall Fescue (120) Kobe Lespedeza (50) Abruzzi Rye (25)	SP-2	SM-2	MA-4
	Winter					
High Maintenance Turf (north of Pristine Water Drive - see plans)	Spring or Fall	Tall Fescue Blend (200)	German Millet (40) Abruzzi Rye (120)	SP-3	SM-2	MA-3
	Summer					MA-4
Grassed Channels with side slopes (along Pristine Water Dr. - see plans)	Spring or Fall	Tall Fescue (120) Abruzzi Rye (140)	Tall Fescue (120) Browntop Millet (35)	SP-4	SM-2	MA-2
	Summer					
Low Maintenance Areas - All disturbed project areas except for the three categories listed above and the pump station site.	Spring or Fall	Tall Fescue (200)	Tall Fescue (120) Browntop Millet (35)	SP-4	SM-2	MA-1
	Summer					MA-4
Wetlands - for all disturbed Wetland areas in the project	Fall, Winter, or Spring	Mellow March Ferns (or approved equal) Wetland Seed Mx. (25)	German Millet (40)	SP-5	SM-2	MA-3
Pump Station Site	Summer					

Refer to Attachment 1 for details of Seedbed preparation, seeding method, and mulch and maintenance requirements.  
 Spring (Feb. 1 - April 15); Summer (April 15 - Aug. 20); Fall (Aug. 20 - October 25); Winter (October 25 - Feb 1)

**ATTACHMENT 1**

Task	Type	Description
Seedbed Preparation (SP)	SP-1	Permanent Seeding of fill slopes 3:1 or steeper to be seeded in accordance with the Stabilization Timeframe Table, with a hydraulic seeder. 1. Leave the last 4-6 inches of fill loose and uncompacted, allowing rocks, roots, large clods and other debris to remain on the slope. 2. Roughen slope faces by making grooves 2-3 inches deep, perpendicular to the slope. 3. Spread lime evenly over slopes at rates recommended by soil tests.
	SP-2	Temporary Seeding of fill slopes 3:1 or steeper to be seeded in accordance with the Stabilization Timeframe Table 1. Leave a loose and uncompacted surface. Remove rocks, roots, large clods and other debris which might hold netting above the surface. 2. Spread lime evenly over slopes at rates recommended by soil tests. 3. Incorporate amendments by roughening or growing soil surface on the contour.
	SP-3	High maintenance turf to be seeded in accordance with the Stabilization Timeframe Table 1. Remove rocks and debris that could interfere with tillage and the production of a uniform seedbed. 2. Apply lime and fertilizer at rates recommended by soil tests; spread evenly and incorporate to a depth of 2 to 4 inches, with a farm disk or chisel plow. 3. Loosen the subgrade immediately prior to spreading topsoil by disking or scarifying to a depth of at least 2 inches. 4. Spread topsoil to a depth of 2-4 inches and cullpack. 5. Disc or harrow and rake to produce a uniform and well pulverized surface. 6. Loosen surface just prior to applying seed.
SP-4	Gentle or flat slopes where topsoil is not used, to be seeded in accordance with the Stabilization Timeframe Table 1. Remove rocks and debris 2. Apply lime and fertilizer at rates recommended by soil tests; spread evenly and incorporate into the top 6 inches, with a farm disk, chisel plow, or rotary tiller. 3. Break up large clods and rake into a loose, uniform seedbed. 4. Rake to loosen surface just prior to applying seed.	
SP-5	Wetland areas, where wetland topsoil shall be stockpiled and then replaced; to be seeded in accordance with the Stabilization Timeframe Table 1. Remove rocks and debris that could interfere with tillage and the production of a uniform seedbed. 2. Apply lime and fertilizer at rates recommended by soil tests; spread evenly and incorporate to a depth of 2 to 4 inches, with a farm disk or chisel plow. 3. Loosen the subgrade immediately prior to spreading the stockpiled wetland topsoil by disking or scarifying to a depth of at least 2 inches. 4. Spread topsoil to a depth of 2-4 inches and cullpack. 5. Disc or harrow and rake to produce a uniform and well pulverized surface. 6. Loosen surface just prior to applying seed.	
Seeding Methods (SM)	SM-1	Permanent Seedings, fill slopes steeper than 3:1 - use hydraulic seeding equipment to apply seed and fertilizer, a wood fiber mulch at 45 pounds/1,000 square feet, and mulch tackifier
	SM-2	Temporary Seedings and slopes flatter than 3:1 1. Broadcast seed at the recommended rate with a cyclone seeder, drop spreader, or cultipacker seeder 2. Rake seed into the soil and lightly pack to establish good contact
Mulch Methods (MU)	MU-1	Slopes 3:1 or steeper - In mid-summer, late fall, or winter, apply 100 pounds/1,000 square feet of grain straw, cover with netting and staple to the slope. In spring and early fall, use 45 pounds/1,000 square feet of wood fiber in a hydroseder slurry
	MU-2	High maintenance vegetation and temporary seedings - apply 90 pounds/1,000 square feet (4,000 pounds/acre) grain straw and tack with 11 gallons/1,000 square feet
	MU-3	Grass-lined channels and swales - Install North American Green product (see plans) in the channel, extend up the channel banks to the depth shown, and secure in accordance with the manufacturer's specifications. On channel shoulders, apply 100 pounds/1,000 square feet grain straw and anchor with 11 gallons asphalt/1,000 square feet
Maintenance (MA)	MA-1	Refertilize in late winter or early spring the following year.
	MA-2	Inspect and repair mulch and lining as needed. Refertilize in late winter of the following year with 150 pounds/acre (3.5 pounds/1,000 square feet) of 10-10-10 fertilizer.
	MA-3	Topdress with 10-10-10 fertilizer if growth is not fully established over the disturbed areas.
	MA-4	Topdress with 50 pounds per acre (1 pound/1,000 square feet) of nitrogen in March.

STABILIZATION TIMEFRAMES		
SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
Perimeter dikes, swales, ditches, 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' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.

**CONSTRUCTION SEQUENCE - CONTRACT 1 (PUMP STATION & UTILITIES TO STA. 12+00)**

- The contractor shall conduct self-inspections of the erosion and sedimentation control measures and complete the following combined self-inspection form found on the DEMLR website: (<http://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/forms>) Completed inspection forms shall be kept on-site and available for inspection at all times. It is recommended a copy be kept in the permits box.
- Contact NCDEQ-DEMLR at (919)791-4200 to provide notice of pre-construction meeting and project start-up at least 48 hours prior to commencement of demolition and construction activities.
- All equipment staging, lay down areas, spoils or waste areas must have perimeter measures installed and maintained until permanently stabilized.
- Sediment storage devices must be maintained until all upgrade areas have been permanently stabilized.
- De-watering of sediment containment devices must be done through a silt bag.
- Install tree protection fence, silt fence, and check dams as shown on plans.
- Call (919)791-4200 for inspection of installations.
- Install temporary stream crossings. Contractor shall locate temporary crossings at some location of permanent crossings where feasible.
- Begin clearing and grubbing. Limit clearing in stream to hand cutting vegetation along stream banks leaving root systems undisturbed. To the extent possible, leave stream areas that will be unaffected by utility installation undisturbed.
- Apply temporary seeding to areas unaffected by pump station excavation & stockpiling.
- Begin pump station excavation. The stockpiling of excavated material must be limited to within the perimeter measures on the pump station site as shown on the plans.
- Provide concrete wash-out structure at pump station site ensuring all setback requirements are met.
- After pump station and valve vault are set and backfilling proceeds the perimeter slopes can be brought to finished grade. Apply seeding within seven (7) days to all finished slopes.
- Contractor to determine a period of dry weather for utility installation across drainage way. Construct cofferdam and provide pump to divert any upland flow around trenching operation. After utility installation is completed reconstruct stream to pre-construction configuration and slope. Immediately stabilize banks with rolled erosion control product as shown on plans. Apply permanent seeding within seven (7) days.
- Continue with construction of additional structures and installation of equipment. As areas are brought to final grades provide seeding within seven (7) days.
- Contractor may elect to install permanent slope plantings and rolled erosion control product as shown on plans to finished slopes if no further disturbance will occur.
- When laydown and staging area is no longer needed construct truck turn around and install 15" RCP and energy dissipator as shown on plans.
- When construction is completed and site is stabilized call (919)791-4200 for inspection.
- If site is approved remove temporary erosion control measures and permanently seed any disturbed areas resulting from the removal of temporary measures.
- When permanent cover is established call (919)791-4200 for final inspection.

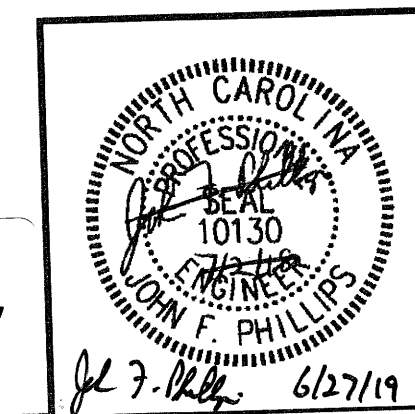
**CONSTRUCTION SEQUENCE - CONTRACT 2 (UTILITIES STA. 12+00 TO END)**

- The contractor shall conduct self-inspections of the erosion and sedimentation control measures and complete the following combined self-inspection form found on the DEMLR website: (<http://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/forms>) Completed inspection forms shall be kept on-site and available for inspection at all times. It is recommended a copy be kept in the permits box.
- Contact NCDEQ-DEMLR at (919)791-4200 to provide notice of pre-construction meeting and project start-up at least 48 hours prior to commencement of demolition and construction activities.
- All equipment staging, lay down areas, spoils or waste areas must have perimeter measures installed and maintained until permanently stabilized.
- Sediment storage devices must be maintained until all upgrade areas have been permanently stabilized.
- De-watering of sediment containment devices must be done through a silt bag.
- Install tree protection fence, silt fence, and check dams as shown on plans.
- Call (919)791-4200 for inspection of installations.
- Install temporary stream crossings. Contractor shall locate temporary crossings at some location of permanent crossings where feasible.
- Contractor to utilize solid bottom timber mats with sides when necessary to avoid excessive rutting in wetland areas and at stream crossings.
- Begin clearing and grubbing. Limit clearing in stream to hand cutting vegetation along stream banks leaving root systems undisturbed. To the extent possible, leave stream areas that will be unaffected by utility installation undisturbed.
- For construction corridors in wetlands and across stream channels, stumps shall be grubbed only as needed to install the utilities and remaining stumps shall be cut off at grade level. The general stripping of topsoil within wetlands along the construction corridor is not permitted.
- Apply temporary seeding to cleared areas.
- Provide concrete wash-out structures as necessary ensuring all setback requirements are met.
- Conduct trenching and pipe laying activities.
- Contractor to determine a period of dry weather for utility installation across drainage ways. Construct cofferdam and provide pump to divert any upland flow around trenching operation. After utility installation is completed reconstruct streams to pre-construction configuration and slope. Immediately stabilize banks with rolled erosion control product as shown on plans. Apply seeding within seven (7) days.
- Trenches shall be backfilled as work progresses. There shall be no open trenches overnight. Stabilize trench surface as soon as possible following backfill.
- Stabilize shoulders and all disturbed areas per plans and specifications and according to stabilization timeframes.
- When construction is completed and site is stabilized call (919)791-4200 for inspection.
- If site is approved remove temporary erosion control measures and permanently seed any disturbed areas resulting from the removal of temporary measures.
- When permanent cover is established call (919)791-4200 for final inspection.

**EROSION CONTROL PLAN NOTES:**

- Temporary and permanent erosion control measures shall be provided for all land disturbing activities in accordance with these plans and specifications and with NCDEQ-DEMLR approved erosion control plan. See specification section 2-M.
- Seed and stabilize all disturbed areas according to Stabilization Timeframes shown on this sheet.
- Contractor shall adhere to erosion control self-monitoring program including all documentation.

The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.			
NA	Date	NA	Date
PW-Transportation		WR - Stormwater	
NA	Date	NA	Date
Building Inspections		Planning	
NA	Date	3-15-19	Date
WR - Utility Engineering		Planning - Transportation	
NA	Date	NA	Date
Electric		Fire	
NA	Date	NA	Date
WR - S & E		Parks, Recreation & Cultural Res.	



**Issued for Bid Only**

DESIGN: JFP  
 DRAWN: JLB  
 CHECKED: JFP  
 SCALE: AS SHOWN  
 FILE: MCBPS-Det

**DIEHL & PHILLIPS, P.A.**  
 CONSULTING ENGINEERS - LIC. NO. C-04465  
 1500 PINEY PLAINS RD., SUITE 200  
 CARY, N.C. 27518 • (919) 467-9972

**D&P**  
 MIDDLE CREEK REGIONAL  
 PUMP STATION, FORCE MAIN, & INTERCEPTOR  
 MEW INVESTMENTS, LLC  
 APEX, NORTH CAROLINA

EROSION CONTROL DETAILS -  
 CONTRACTS 1 & 2

30A OF 33



**LEGEND**

- GROUND FAULT TYPE RECEPTACLE
- CIRCUIT BREAKER, NUMERALS INDICATE AMPS/POLES
- JUNCTION, CAST METAL WITH GASKETED COVER AND THREADED CONDUIT HUBS
- SINGLE POLE LIGHT SWITCH
- MOTOR, HORSEPOWER INDICATED
- COPPERWELD GROUND ROD, 3/4" DIAMETER, 10' LONG
- CONNECTION TO GROUNDING ELECTRODE
- AWG # 2/0 COPPER GROUND WIRE 30" BELOW GRADE
- WIRE IN CONDUIT, EXPOSED UNLESS OTHERWISE INDICATED
- WIRE IN CONDUIT, 30" BELOW GRADE
- HOME RUN TO PANELBOARD
- CIRCUIT BREAKER PANELBOARD
- RMS AMPERES INTERRUPTING RATING
- TWISTED, SHIELDED PAIR AWG #16 INSTRUMENTATION CABLE
- HARD DRAWN BARE COPPER
- AUTOMATIC TRANSFER SWITCH
- NEUTRAL
- GROUND
- FLOW TRANSMITTER
- CONTROL PANEL SUPPLIED BY EQUIPMENT MANUFACTURER - SEE NOTE 2
- SURGE PROTECTIVE DEVICE
- PUMP STATION CONTROL PANEL
- SOLID STATE REDUCED VOLTAGE CONTROLLER, COMBINATION TYPE
- PORTABLE CABLE FURNISHED TERMINATED TO PUMP
- HEAT TRACE OUTLET
- NOTE REFERENCE SYMBOL

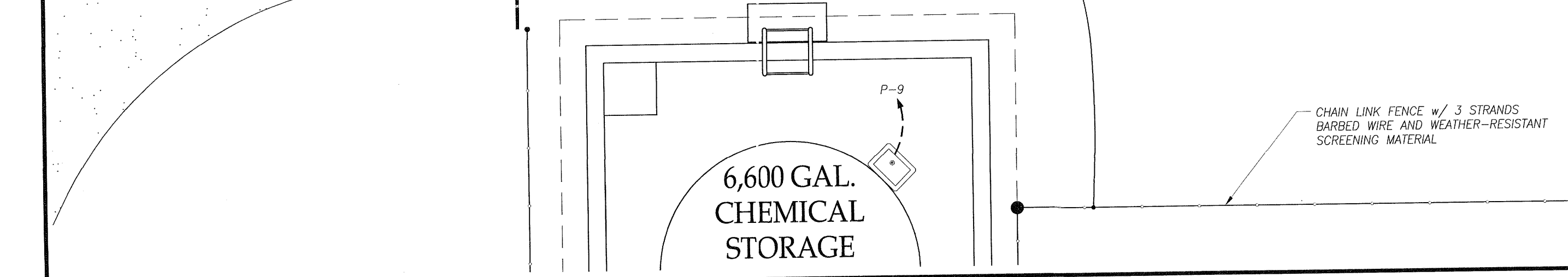
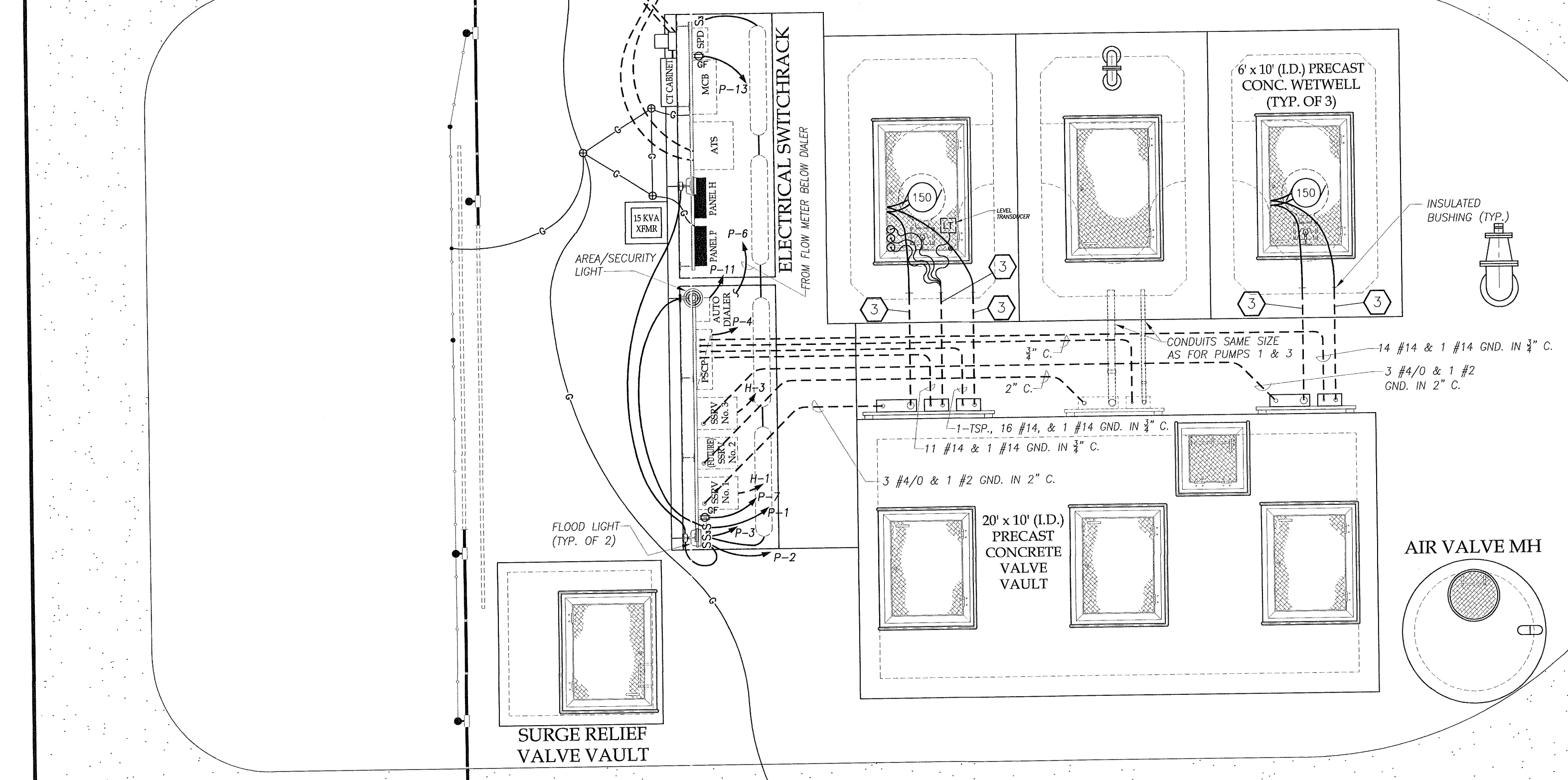
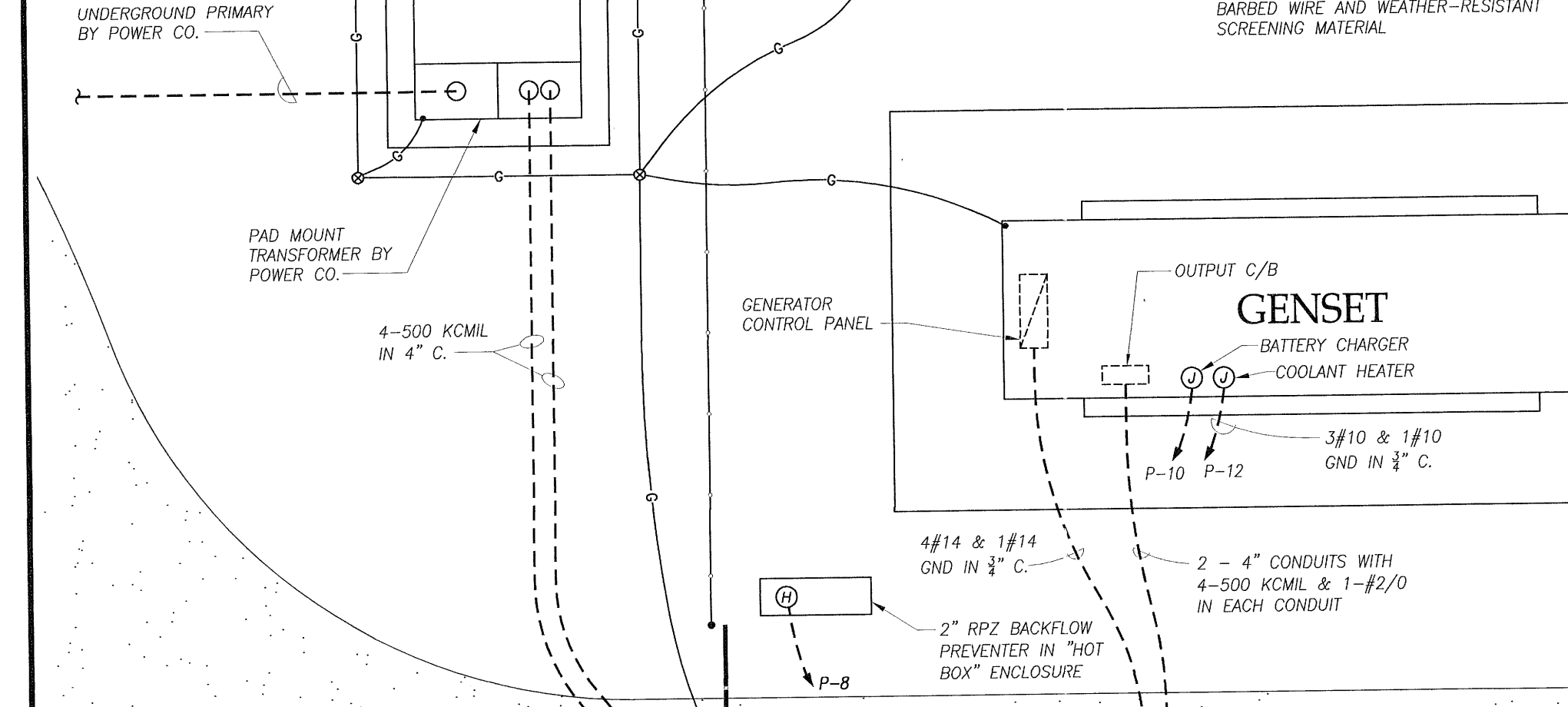
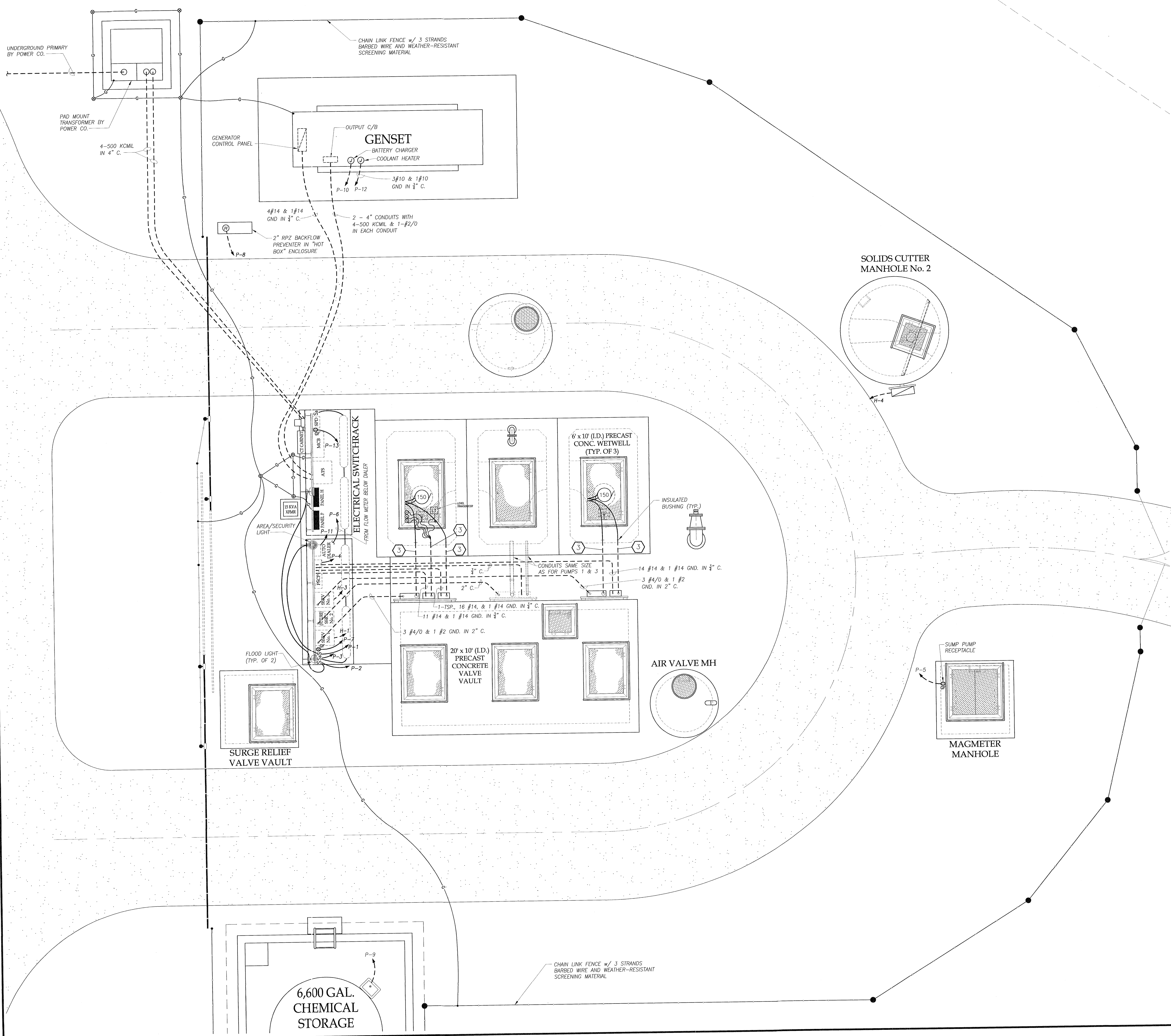
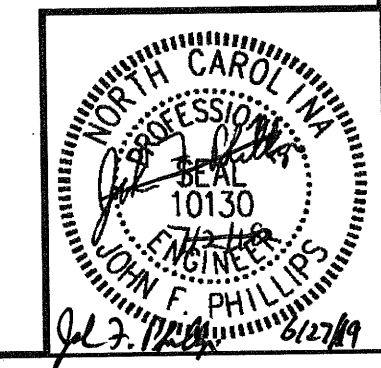
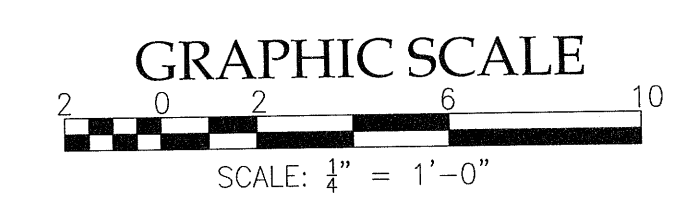
**NOTES:**

1. CONDUIT SHALL BE AS FOLLOWS:
  - a. UNDERGROUND CONDUIT SHALL BE PVC WITH 30" COVER. STUBUPS SHALL BE PVC COVERED STEEL (ROBROY OR OCAL), CONVERT PVC TO PVC COVERED CONDUIT BELOW GRADE. NO EXPOSED PVC CONDUIT SHALL BE INSTALLED.
  - b. EXPOSED CONDUIT OUTDOORS SHALL PVC COVERED STEEL.
2. THE CONTRACTOR SHALL PROVIDE ALL EXTERNAL POWER, CONTROL, AND SIGNAL WIRE AND CABLE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S WIRING DIAGRAMS FOR THE ASSOCIATED EQUIPMENT.
3. MINIMUM SIZE OF CONDUITS FOR THE CABLES FURNISHED WITH THE PUMPS, FLOAT SWITCHES, AND THE LEVEL TRANSDUCER SHALL PROVIDE A CONDUIT FILL OF 30%.
4. WIRE SHALL BE THWN INSULATED STRANDED COPPER. NO SOLID WIRE SHALL BE INSTALLED.

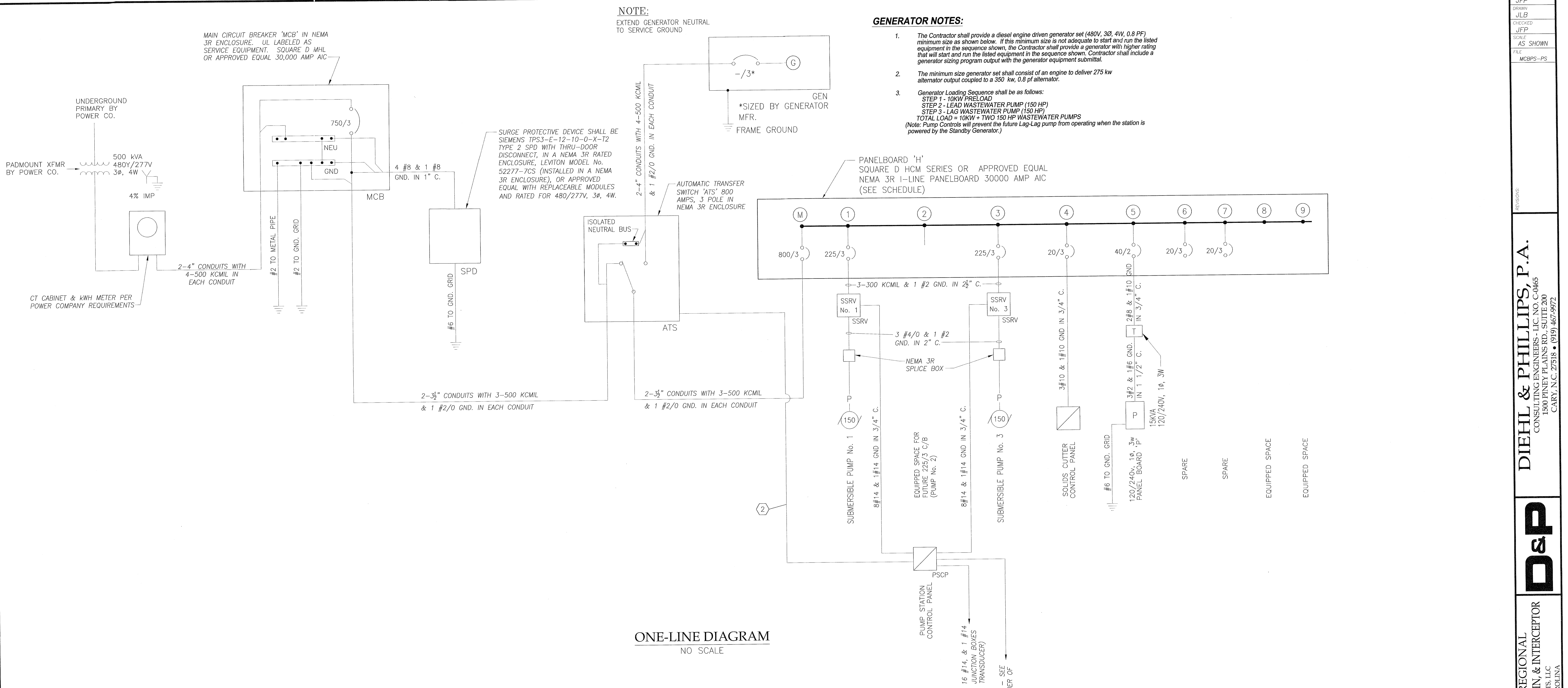
The signatures attested below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

NA	Date	WR - Stormwater	NA	Date
<i>Samantha Owens</i>	3/11/19	NA	NA	Date
Building Inspections	Date	Planning	NA	Date
<i>D. H. H.</i>	3/15/19	NA	NA	Date
WR - Utility Engineering	Date	Planning - Transportation	NA	Date
NA	Date	Fire	NA	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	NA	Date

Issued for Bid Only







**ONE-LINE DIAGRAM**  
NO SCALE

PANEL DESIGNATION: 'H'  
VOLTAGE: 480V, 3Ø, 3W, 4  
AMPERES: 800A

LOAD SERVED	CONNECTED LOAD (KVA)			CIRCUIT BREAKER AMPS	POLES	CKT NO.	GND	LOAD SERVED					
	A	B	C					CT NO.	AMPS	POLES	A	B	C
SSRV No. 1	50	50	50	225	3	1		2	3	50	50	50	EQUIPPED SPACE FOR 225A C/B
SSRV No. 3	50	50	50	225	3	3		4	20	3	2	2	SOLIDS CUTTER CONTROL PANEL
PANEL 'P' 15A 15 KVA XFMR	7	7		40	2	5		6	20	3			SPARE
SPARE				20	3	7		8	3				EQUIPPED SPACE
EQUIPPED SPACE						9		10	3				EQUIPPED SPACE
SUB-TOTAL								52	52	52	SUB-TOTAL		

TOTAL CONNECTED LOAD = 320 KVA  
 TOTAL FUTURE CONNECTED LOAD = 470 KVA  
 INTERRUPTING RATING AT 480V: 30,000A

PANEL DESIGNATION: 'P'  
VOLTAGE: 120/240V, 1Ø, 3W  
AMPERES: 100A

LOAD SERVED	CONNECTED LOAD (KVA)			CIRCUIT BREAKER AMPS	POLES	CKT NO.	GND	LOAD SERVED					
	L1	L2						CT NO.	AMPS	POLES	L1	L2	
AREA LUMINAIRE	0.1			20	1	1		2	20	1	0.1	FLOOD LIGHTS	
WEATHERHOOD LIGHTS	0.1			20	1	3		4	20	1	0.2	PUMP STATION CONTROL PANEL	
GR RECEPTACLE FOR SUMP PUMP	1.1			20	1	5		6	20	1	0.1	FLOW METER	
WEATHERHOOD RECEPTACLES	0.5			20	1	7		8	20	1	1.2	RPZ ENCLOSURE HEATER	
CHEMICAL FEED SYSTEM	0.3			20	1	9		10	20	1	0.2	BATTERY CHARGER	
AUTODIALER	0.1			20	1	11		12	30	2	1.5	1.5	COOLANT HEATER
WEATHERHOOD RECEPTACLES	0.5			20	1	13		16	20	2			EQUIPPED SPACE
SPARE				20	1	15		20	1				EQUIPPED SPACE
SPARE				20	1	17							EQUIPPED SPACE
SUB-TOTAL								2.0	0.7	SUB-TOTAL			

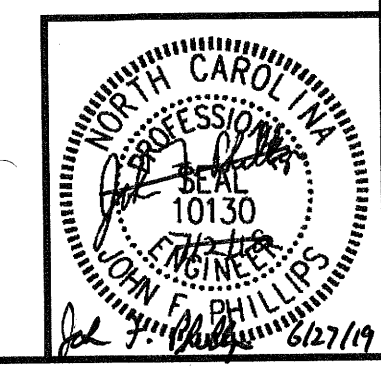
L1: 3.9 KVA  
 L2: 3.6 KVA  
 TOTAL CONNECTED LOAD = 7.5 KVA  
 INTERRUPTING RATING AT 240V: 10,000A

**NOTES:**

- PROVIDE CONDUIT AND #14 WIRING AS REQUIRED FOR THE ALARM DIALER INPUTS SHOWN ON SHEET 33. INSTALL THE CONDUIT REQUIRED FOR SSRV No. 2 FAULT INPUT, FROM THE ALARM DIALER TO 3 INCHES ABOVE THE CONCRETE SLAB (BENEATH THE PLANNED LOCATION OF SSRV No. 2). INSTALL A PULL STRING & CAP THE END OF THE CONDUIT.
- PROVIDE THE REQUIRED CONDUIT & WIRING, FROM THE ATS TO THE PUMP STATION CONTROL PANEL, TO PREVENT THE LAG-LAG PUMP OPERATION WHILE THE STATION IS OPERATING ON GENERATOR POWER. SEE SPECIFICATION SECTION 11-A.

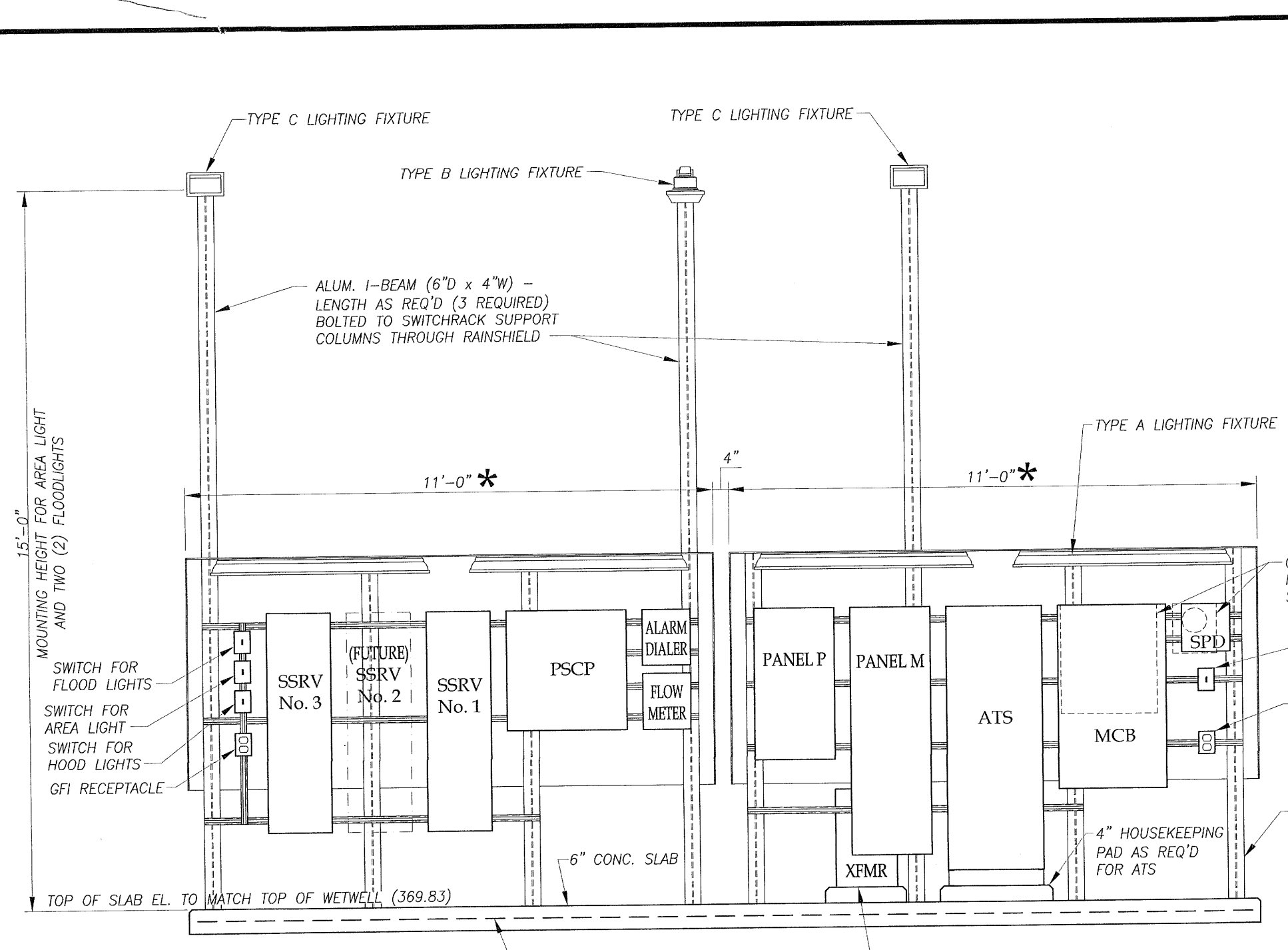
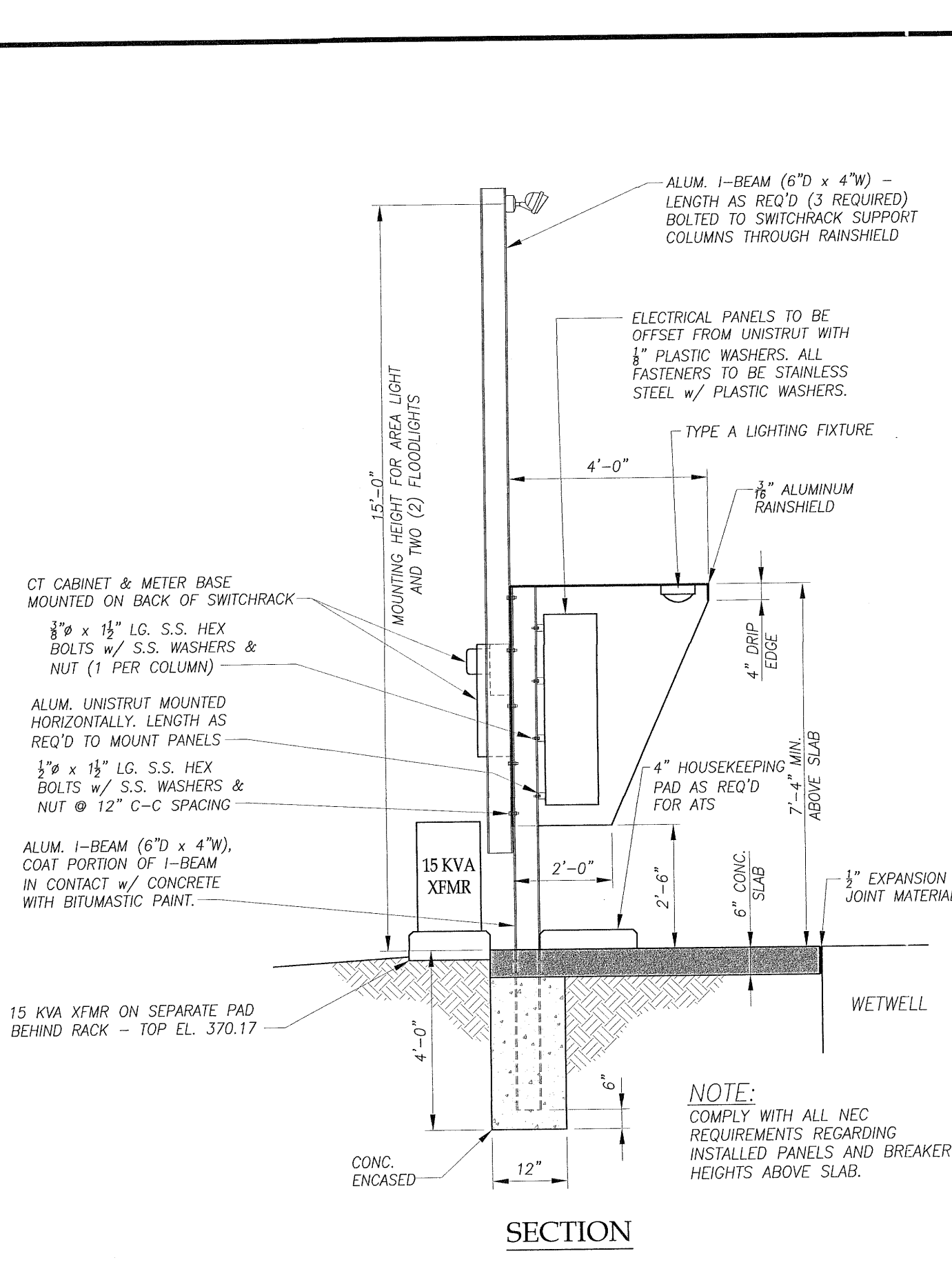
The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

PW-Transportation	Date	WR - Stormwater	Date
Building Inspections	Date	Planning	Date
WR - Utility Engineering	Date	Planning - Transportation	Date
Electric	Date	Fire	Date
WR - S & E	Date	Parks, Recreation & Cultural Res.	Date



Issued for Bid Only



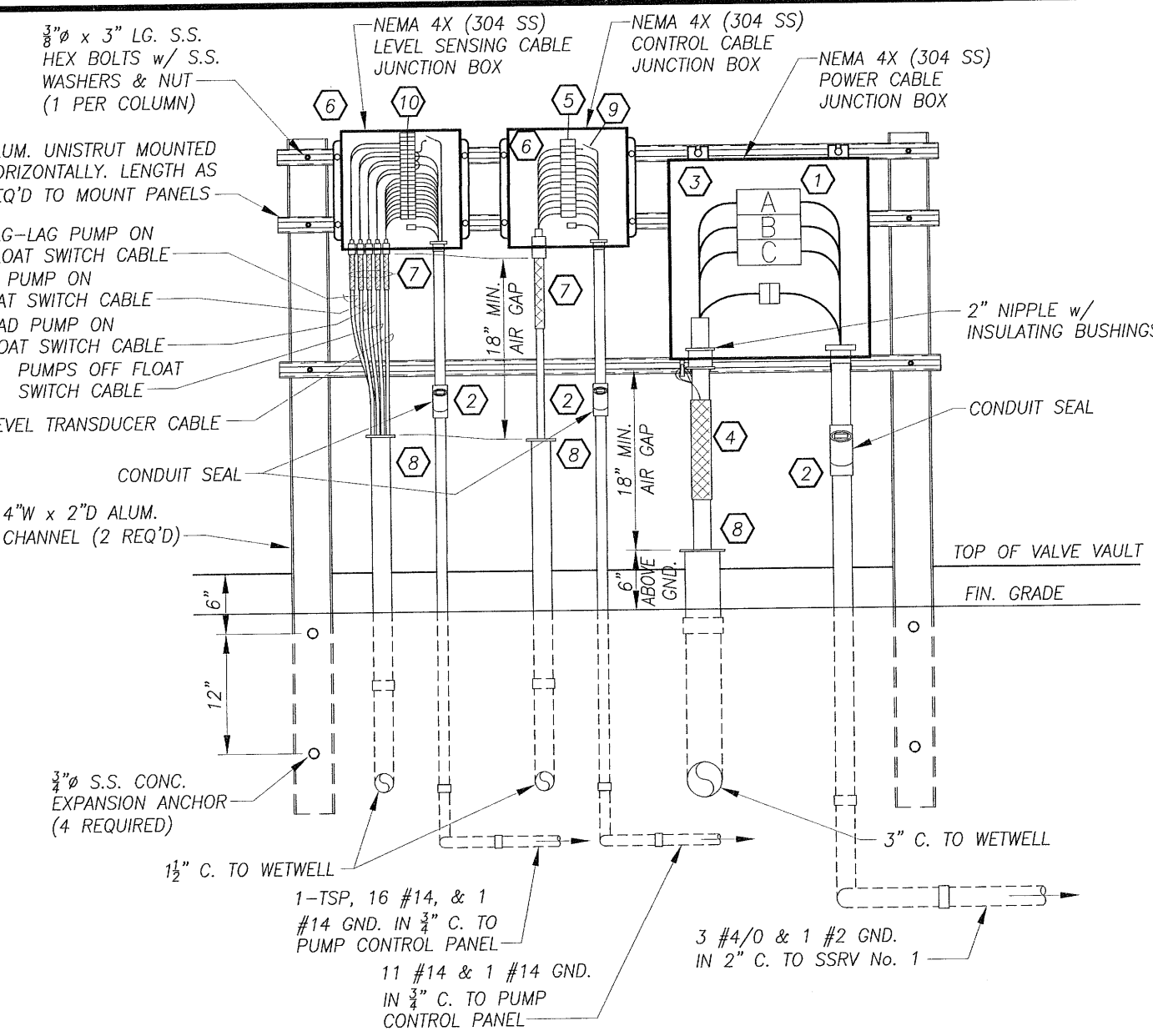
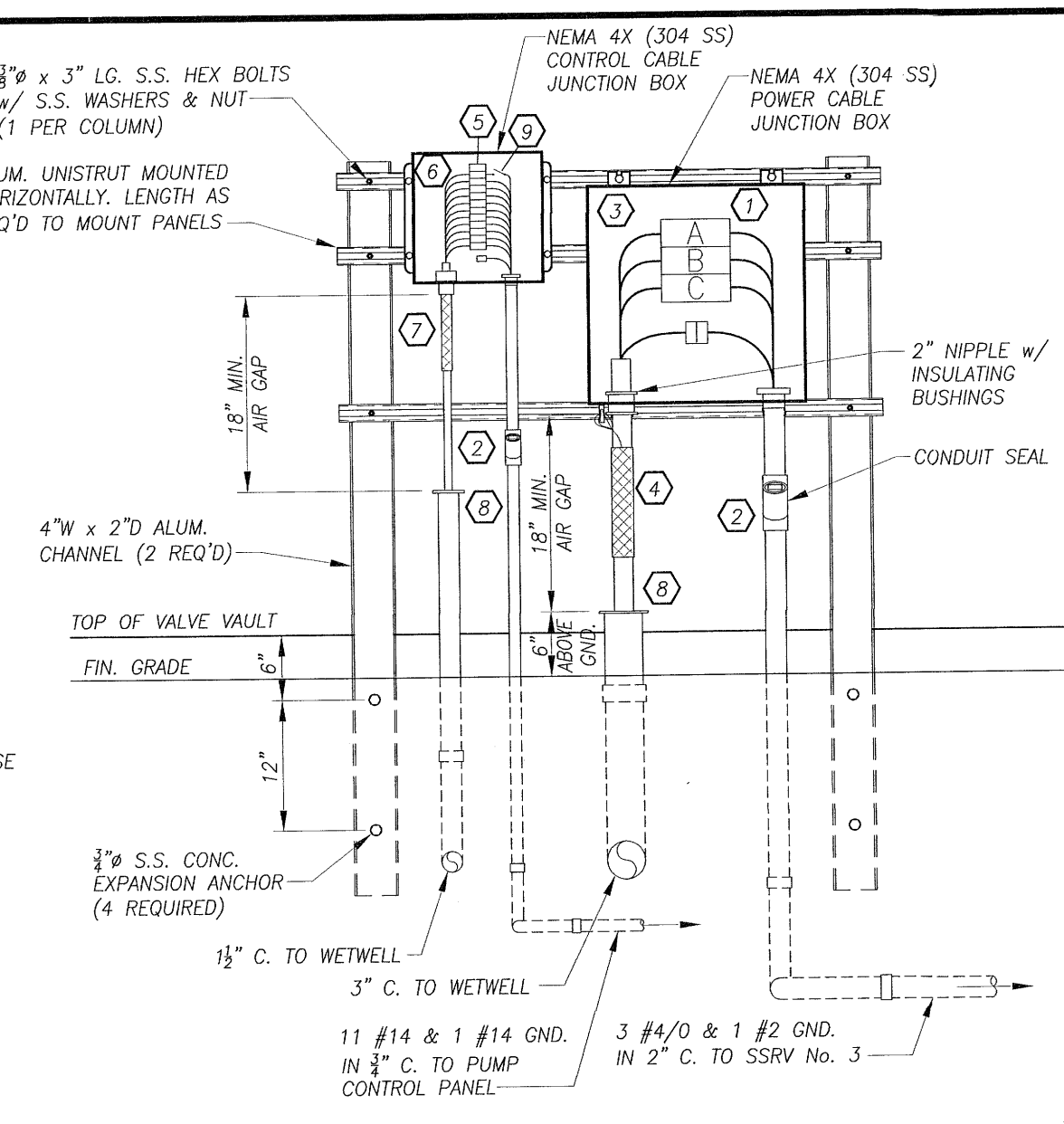


**NOTES:**

- \* APPROXIMATE DIMENSIONS - CONTRACTOR SHALL SUBMIT A SCALE DRAWING SHOWING THE PROPOSED LAYOUT OF ALL OF THE RACK COMPONENTS, BASED ON THE DIMENSIONS PROVIDED IN THE APPROVED SUBMITTAL. RACK LENGTH TO BE ADJUSTED ACCORDINGLY..
- ALL BELOW GROUND CONDUITS SHALL BE INSTALLED FOR FUTURE SSRV No. 2, FROM THE MAIN SWITCHRACK TO THE (FUTURE) PUMP No. 2 JUNCTION BOX, AND FROM THAT LOCATION INTO WETWELL No. 2. TERMINATE CONDUITS 3-INCHES ABOVE THE CONCRETE SLAB (BENEATH THE PLANNED LOCATION OF SSRV No. 2), AND CAP THE CONDUITS. TERMINATE CONDUITS UNDER FUTURE PUMP No. 2 JUNCTION BOX IN A SIMILAR MANNER. PROVIDE A PULL STRING IN EACH EMPTY CONDUIT.

**MAIN SWITCHRACK DETAIL**

NO SCALE



**JUNCTION BOX DETAILS**

NO SCALE

**NOTES FOR JUNCTION BOX DETAILS**

- POWER DISTRIBUTION BLOCKS SHALL BE UL LISTED, FINGER SAFE STYLE SINGLE POLE BLOCKS THAT HAVE A DOVETAILING FEATURE TO ALLOW THREE POLE CONFIGURATIONS. EACH PHASE BLOCK SHALL HAVE DUAL WIRE PORTS ON BOTH LOAD AND LINE SIDES. PORTS SHALL BE CAPABLE OF ACCEPTING WIRE SIZES RANGING FROM 250 KCMIL TO #6 AWG, AT MINIMUM. EACH BLOCK SHALL BE RATED FOR 600V, 500 AMPS, MINIMUM. BLOCKS USED FOR GROUND CONDUCTORS SHALL BE OF THE SAME SERIES AND MANUFACTURER, WITH WIRE PORTS SUITABLE FOR THE GROUNDING CONDUCTORS SHOWN ON THIS SCHEMATIC. POWER DISTRIBUTION BLOCKS SHALL BE AS MANUFACTURED BY EATON BUSSMAN, MARATHON SPECIAL PRODUCTS, OR APPROVED EQUAL. INSTALLATION SHALL PROVIDE ALL CLEARANCES REQUIRED BY NEMA STANDARDS.
- CONDUIT SEAL FITTING, TO BE GASTIGHT BY FILLING WITH A UL LISTED SEALING COMPOUND AFTER SUCCESSFUL TESTING OF PUMP SYSTEMS (WITH POTABLE WATER).
- NEMA 4X SS JUNCTION BOX FOR PUMP POWER CABLES - 20" X 20" X 6" (MINIMUM SIZE, CONTRACTOR MAY UPSIZE IF NECESSARY TO ACHIEVE REQUIRED CLEARANCES AND WIRE BENDING RADIUS). BODY AND DOOR TO BE 14 GAUGE TYPE 304 STAINLESS STEEL, WITH SEAMLESS FOAM IN PLACE GASKET, SS DOOR CLAMP ASSEMBLIES, HASP AND STAPLE FOR PADLOCKING, REMOVABLE CONTINUOUS SS HINGE PIN, AND BACK PANEL, AS MANUFACTURED BY HOFFMAN OR APPROVED EQUAL.
- HEAVY DUTY CABLE SUPPORT GRIP (KELLEMS GRIP) WITH STAINLESS STEEL (OR TIN COATED BRONZE) DOUBLE WEAVE, DOUBLE EYE, CLOSED MESH WITH AN APPROXIMATE MINIMUM BREAKING STRENGTH OF 4,000 POUNDS, AS MANUFACTURED BY BRYANT (A HUBBELL COMPANY), OR APPROVED EQUAL. CONTRACTOR SHALL PROVIDE STAINLESS STEEL HOOKS OR FASTENERS IN THE UNI-STRUT RACK TO SECURE THE EYES OF THE GRIP.
- TERMINAL BLOCKS SHALL BE CLOSED BACK, HIGH BARRIER WITH 20A, 600VAC RATING, AND SHALL COMPLY WITH UL 1059 TERMINAL BLOCK STANDARD. TERMINAL BLOCK SHALL BE MARATHON SPECIAL PRODUCTS CAT. NO. 621 RZ 12 (12 POLES), OR APPROVED EQUAL.
- NEMA 4X SS JUNCTION BOX FOR PUMP CONTROL CABLES AND FOR LEVEL SENSING CABLES - 12" X 12" X 6" (MINIMUM SIZE, CONTRACTOR MAY UPSIZE IF NECESSARY TO ACHIEVE REQUIRED CLEARANCES AND WIRE BENDING RADIUS). BODY AND DOOR TO BE 14 GAUGE TYPE 304 STAINLESS STEEL, WITH SEAMLESS FOAM IN PLACE GASKET, SS DOOR CLAMP ASSEMBLIES, HASP AND STAPLE FOR PADLOCKING, REMOVABLE CONTINUOUS SS HINGE PIN, AND BACK PANEL, AS MANUFACTURED BY HOFFMAN OR APPROVED EQUAL.
- STRAIN RELIEF GRIP WITH ALUMINUM FITTING, NPT CONNECTION, LOCKNUT, INSULATED BUSHING, ETC. AS REQUIRED TO CONNECT CABLE TO ENCLOSURE, AND AS MANUFACTURED BY BRYANT (A HUBBELL COMPANY), OR APPROVED EQUAL.
- PROVIDE INSULATED BUSHINGS ON THE ENDS OF CONDUITS, AND PLACE DUCT SEAL PUTTY COMPOUND IN THESE CONDUITS, TO CREATE A REMOVABLE WATERTIGHT SEAL AROUND THE CABLES EXITING THE CONDUITS.
- THE POWER WIRE FOR THE MOTOR THERMAL PROTECTION CIRCUIT IS TO BE CONNECTED TO A NEMA 4X MAINTAINED CONTACT, TWO-POSITION SELECTOR SWITCH IN THE ENCLOSURE DOOR, WITH THE LEGEND PLATE INSCRIBED WITH "OFF ON". A NAMEPLATE SHALL BE PROVIDED ON THE DOOR FOR THE SWITCH, INSCRIBED WITH "MOTOR THERMAL PROTECTION POWER DISCONNECT SWITCH".
- TERMINAL BLOCKS SHALL BE CLOSED BACK, HIGH BARRIER WITH 20A, 600VAC RATING, AND SHALL COMPLY WITH UL 1059 TERMINAL BLOCK STANDARD. TERMINAL BLOCK SHALL BE MARATHON SPECIAL PRODUCTS CAT. NO. 621 RZ 20 (20 POLES), OR APPROVED EQUAL.

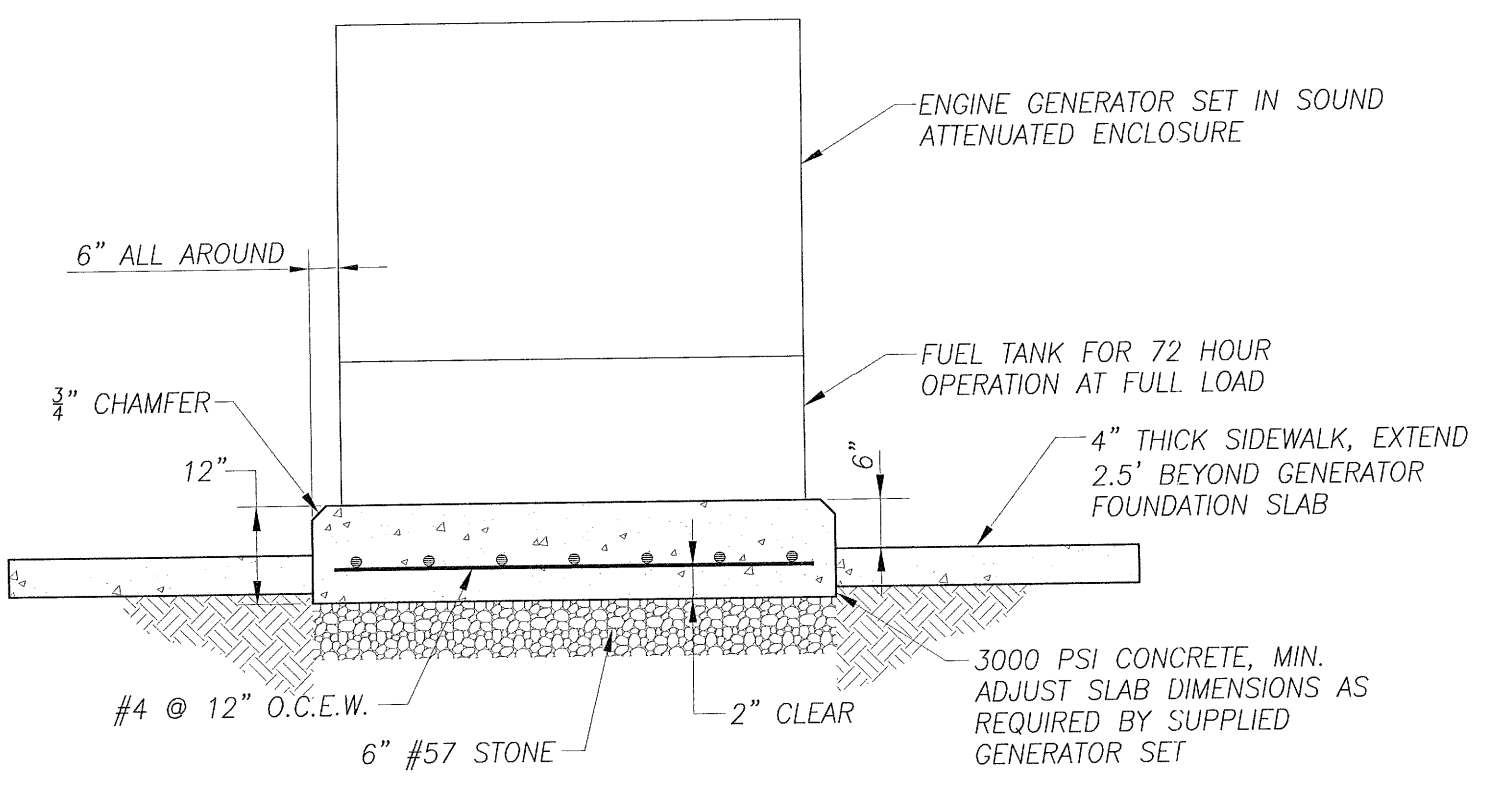
ALL CONDUCTORS AND TERMINALS SHALL BE NUMBERED PER APPROVED SUBMITTAL DRAWINGS FOR THE PUMPS, PUMP CONTROL PANEL, LEVEL TRANSDUCER, ETC. CONTRACTOR SHALL PREPARE AN AS-BUILT DRAWING, NOTING ALL CONDUCTOR AND TERMINAL NUMBERING, ANY DEVIATIONS FROM THE PLANS, ETC.

DRY CONTACT ALARM INPUTS FOR AQUAVX ALARM DIALER		
CHANNEL NO.	ALARM CONDITION DESCRIPTION	INPUT ORIGIN
1	HIGH WETWELL LEVEL	PUMP STATION CONTROL PANEL
2	BACKUP FLOAT SWITCH SYSTEM IN OPERATION	PUMP STATION CONTROL PANEL
3	PUMP 1 MOTOR OVERTEMPERATURE	PUMP STATION CONTROL PANEL
4	PUMP 2 MOTOR OVERTEMPERATURE	PUMP STATION CONTROL PANEL (INACTIVE UNTIL PUMP 2 IS INSTALLED)
5	PUMP 3 MOTOR OVERTEMPERATURE	PUMP STATION CONTROL PANEL
6	SOLIDS CUTTER FAIL	SOLIDS GRINDER CONTROL PANEL
7	GENERATOR FAIL	GENERATOR CONTROL PANEL
8	SOLID STATE REDUCED VOLTAGE (SSRV) CONTROLLER 1 FAULT	SSRV 1 ENCLOSURE
9	SOLID STATE REDUCED VOLTAGE (SSRV) CONTROLLER 2 FAULT	SSRV 2 ENCLOSURE (FUTURE)
10	SOLID STATE REDUCED VOLTAGE (SSRV) CONTROLLER 3 FAULT	SSRV 3 ENCLOSURE

Contractor shall furnish and install one Aquavx Scout cellular alarm dialer, in a NEMA 4X enclosure. Unit shall have an input capacity of 10 dry contacts and 4 analog signals. A 12 hour internal battery backup shall be included with the system.

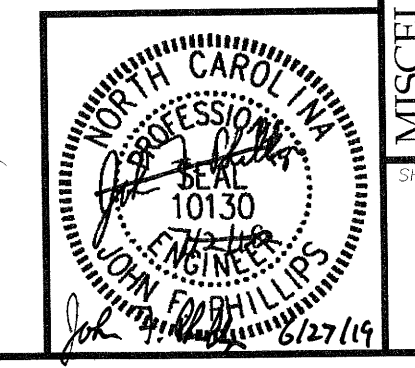
**LIGHTING FIXTURE SCHEDULE**

- TYPE A - LED LUMINAIRE, WET LOCATION LABEL, 4000 LUMENS, ENCLOSED AND GASKETED, LITHONIA CAT. No. VAP-4000LW-FST-MD-120V-G210-40K-80CR1 (4 REQUIRED)
- TYPE B - LED AREA LUMINAIRE, LITHONIA CAT. No. TDD LED-P1-40K-120-PE-DNA-M4 WITH OPTIONAL MOUNTING ARM (1 REQUIRED)
- TYPE C - QUARTZ HALOGEN FLOODLIGHT, WITH BRONZE FINISH, TEMPERED CLEAR GLASS LENS, HINGED DOOR FRAME, AND LIGHT SHIELDING VISOR - LITHONIA CAT. No. OFL 300/500Q (2 REQUIRED)



The signatures affixed below certify that this sheet has been reviewed and approved solely per the certifications signed on the cover sheet of these construction plans.

<i>N/A</i>	Date	<i>N/A</i>	Date
PW-Transportation		WR - Stormwater	
<i>N/A</i>	Date	<i>N/A</i>	Date
Building Inspections		Planning	
<i>D. Smith</i>	3-15-15	<i>N/A</i>	Date
WR - Utility Engineering		Planning - Transportation	
<i>N/A</i>	Date	<i>N/A</i>	Date
Electric		Fire	
<i>N/A</i>	Date	<i>N/A</i>	Date
WR - S & E		Parks, Recreation & Cultural Res.	
	Date		Date



Issued for Bid Only