

# CONSTRUCTION PLANS

## FOR

# OLD AUGUSTA ROAD

# UTILITY EXTENSION

# EFFINGHAM COUNTY, GEORGIA

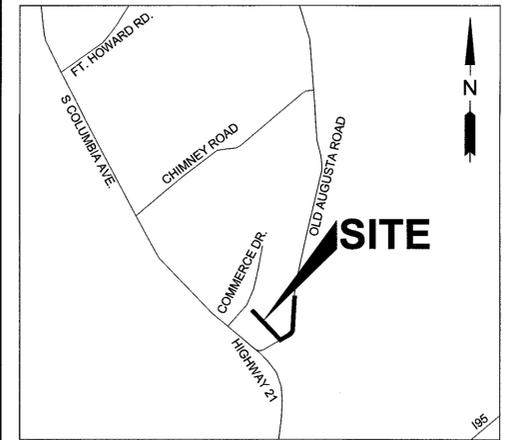
**MAY 2016**

**EMC PROJECT NO. 16-0004**

**DEVELOPER/RESPONSIBLE PARTY:**  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**  
**601 NORTH LAUREL STREET**  
**SPRINGFIELD, GA, 31329**  
**PHONE#: 912-754-2123**



**EMC ENGINEERING SERVICES, INC.**  
**ENVIRONMENTAL - MARINE - CIVIL - SURVEY**



**VICINITY MAP**  
NOT TO SCALE

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**GENERAL NOTES**

- IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT ALL REQUIRED PERMITS ARE OBTAINED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH EFFINGHAM COUNTY SPECIFICATIONS.
- PRIOR TO INSTALLATION OF ANY UTILITY LINES, THE CONTRACTOR SHALL GIVE THE UTILITY COMPANIES THREE (3) WORKING DAYS NOTICE TO ALLOW TIME FOR EXISTING UTILITIES TO BE STAKED. BEFORE CALLING (1-800-282-7411) THE CONTRACTOR SHALL HAVE THE FOLLOWING INFORMATION READY: COUNTY, TOWN, LOCATION, NEAREST STREET INTERSECTIONS, TYPE OF WORK (SEWER, WATER, PAVING, ETC.), YOUR COMPANY NAME, TELEPHONE NUMBER, OWNER'S NAME, DATE AND TIME YOU EXPECT TO COMMENCE CONSTRUCTION, AND WHERE AND HOW YOU CAN BE REACHED AND THE BEST TIME TO CONTACT YOU. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING AN UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLAN OR LOCATED BY THE UTILITY COMPANY. ALL UTILITIES WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE RELOCATED BY THE RESPECTIVE UTILITY COMPANIES, AND THE CONTRACTOR SHALL COOPERATE WITH THEM DURING RELOCATION OPERATIONS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY VARIANCES PRIOR TO COMMENCEMENT OF WORK OR PURCHASING ANY MATERIALS.
- ALL KNOWN UTILITY FACILITIES ARE SHOWN SCHEMATICALLY ON THE PLANS AND ARE NOT NECESSARILY ACCURATE AS TO PLAN OR ELEVATION. UTILITY FACILITIES SUCH AS SERVICE LINES OR UNKNOWN UTILITIES NOT SHOWN ON THE PLANS WILL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES, EXCEPT AS NOTED BELOW. THE CONTRACTOR WILL NOT BE RESPONSIBLE FOR THE COST OF REPAIRS TO DAMAGED UTILITY FACILITIES OTHER THAN SERVICE LINES FROM STREET MAINS TO ABUTTING PROPERTY WHEN SUCH FACILITIES ARE NOT SHOWN ON THE PLANS AND THEIR EXISTENCE IS UNKNOWN TO THE CONTRACTOR PRIOR TO THE DAMAGES OCCURRING PROVIDING THE ENGINEER DETERMINES THE CONTRACTOR HAS OTHERWISE FULLY COMPLIED WITH THE SPECIFICATIONS.
- IT IS THE OBLIGATION OF THE CONTRACTOR TO MAKE HIS OWN INTERPRETATION OF ALL SURFACE AND SUBSURFACE DATA AS TO THE NATURE AND EXTENT OF THE MATERIALS TO BE EXCAVATED. THE INFORMATION SHOWN ON THESE PLANS AND SPECIFICATIONS DOES NOT IN ANY WAY GUARANTEE THE AMOUNT OR NATURE OF THE MATERIAL WHICH MAY BE ENCOUNTERED.
- ALL REINFORCED CONCRETE PIPE (RCP) SHALL MEET THE REQUIREMENTS OF AASHTO M170 (GDOT STANDARD SPECIFICATIONS - SECTION 843).
- FILL MATERIAL SHALL BE CLEAN AND FREE OF ALL DEBRIS AND ORGANIC MATERIAL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATION AND FURNISHING THE BORROW MATERIAL NECESSARY FOR THE CONSTRUCTION OF THIS PROJECT.
- ALL ITEMS REMOVED FROM THE PROJECT WHICH ARE NOT TO BE REUSED SHALL BE MOVED TO A LOCATION APPROVED BY THE OWNER.
- DURING CONSTRUCTION IN THE AREA OF AN INTERSECTION, WORK WILL BE PERFORMED IN SUCH A MANNER AS TO PERMIT TRAFFIC TO OPERATE WITH THE LEAST AMOUNT OF INCONVENIENCE POSSIBLE. ADDITIONAL CHANNELIZATION AND SIGNING SHALL BE INSTALLED, AS DIRECTED BY THE ENGINEER, TO ALLOW TRAFFIC TO FLOW AS FREELY AS POSSIBLE. WHEN AN INTERSECTION IS INOPERABLE, FLAGGERS WILL BE UTILIZED TO CONTROL TRAFFIC.
- ALL SIGNING SHALL BE PER DOT STANDARDS AND M.U.T.C.D.
- ALL TREES TO REMAIN WITHIN THE CONSTRUCTION AREA ARE TO BE PROTECTED DURING CONSTRUCTION; SEE TREE PROTECTION DETAIL.

**CONSTRUCTION NOTES**

- COORDINATION WITH EFFINGHAM COUNTY - THE CONTRACTOR SHALL COORDINATE THEIR CONSTRUCTION WITH THE COUNTY ADMINISTRATOR SO AS TO MINIMIZE DISRUPTION TO THE RESIDENTS ALONG THE PROJECT ROUTE. TO THIS PURPOSE, THE CONTRACTOR WILL BE REQUIRED TO MAKE THE FOLLOWING ADJUSTMENTS TO THE PROJECT:
  - TEMPORARY ACCESS: - THE CONTRACTOR SHALL MAINTAIN ACCESS TO PROPERTIES DURING CONSTRUCTION.
  - ORDER OF CONSTRUCTION: - THE CONTRACTOR SHALL PROCEED IN A LINEAR FASHION ALONG THE PROJECT ROUTE UNLESS OTHERWISE APPROVED BY THE ENGINEER. PRIOR TO BEGINNING CONSTRUCTION CONTRACTOR WILL DEVELOP A STAGE CONSTRUCTION PLAN AND SUBMIT IT TO THE ENGINEER FOR APPROVAL.
  - LIMITS OF CONSTRUCTION: - CONSTRUCTION SHALL BE LIMITED TO THE RIGHT-OF-WAY OR EASEMENT AREAS. CONTRACTOR SHALL STAY WITHIN THE PROJECT AREA WITH ALL HEAVY EQUIPMENT. CONTRACTOR SHALL CLEAR AND CUT ONLY TREES LOCATED WITHIN THE PROJECT CORRIDOR NEEDED FOR CONSTRUCTION OF THIS PROJECT. STUMPS SHALL BE REMOVED EITHER BY EXCAVATION OR GRINDING. CONTRACTOR SHALL WORK AROUND AND PROTECT TREES LOCATED OUTSIDE OF THE PROJECT AREA.
  - MATERIAL STORAGE: - FIELD STORAGE OF MATERIALS NOT IN IMMEDIATE USE IS RESTRICTED TO AREAS DESIGNATED OR APPROVED BY EFFINGHAM COUNTY.
  - EQUIPMENT STORAGE: - END OF THE DAY STORAGE OF EXCAVATION EQUIPMENT ALONG THE PROJECT ROUTE WILL BE ALLOWED ONLY AS APPROVED BY EFFINGHAM COUNTY, OTHERWISE ALL EQUIPMENT SHALL BE STORED IN THE DESIGNATED MATERIALS STORAGE AREAS.
  - PROTECTION OF EXISTING UTILITIES: - THE PROJECT CORRIDOR MAY HAVE EXISTING TELEPHONE, FIBER, GAS, POWER, WATER, SEWER, AND STORM DRAINAGE SYSTEMS. THE CONTRACTOR SHALL BE AWARE OF THE PRESENCE OF THESE SYSTEMS AT ALL TIMES DURING CONSTRUCTION AND SHALL PROTECT THEM FROM DAMAGE. IF DAMAGED BY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL IMMEDIATELY REPAIR THESE SYSTEMS AT HIS OWN EXPENSE.
  - PROTECTION OF EXCAVATED AREAS: - TEMPORARY FENCING SHALL BE USED AROUND OPEN EXCAVATIONS AT ALL TIMES, EXCEPT AS NECESSARY FOR IMMEDIATE CONSTRUCTION. WHEN WORK IS NOT IN PROGRESS, FENCING SHALL ENCLOSE EXCAVATED AREAS. UTILITY TRENCHES SHALL BE BACKFILLED TO GRADE AT THE END OF THE DAY, ALLOWING FOR A MAXIMUM OF 10' (FENCE-PROTECTED) TRENCH TO REMAIN OPEN.
  - RESTORATION PROJECT: - THE CONTRACTOR SHALL RESTORE THE PROJECT AREA TO ITS EXISTING CONDITION AFTER PROJECT CONSTRUCTION IS COMPLETED.
- CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING EXISTING WATER & SEWER SERVICE DURING THE CONSTRUCTION OF THIS PROJECT.

**WATER MAIN NOTES**

- PIPES, FITTINGS, VALVES AND OTHER MATERIAL SHALL, UNLESS OTHERWISE DIRECTED, BE UNLOADED AT THE POINT OF DELIVERY, AND STORED WHERE THEY WILL BE PROTECTED AND WILL NOT BE HAZARDOUS TO TRAFFIC. THEY SHALL AT ALL TIMES BE HANDLED WITH CARE TO AVOID DAMAGE. THE INTERIOR OF ALL PIPE, FITTINGS AND OTHER ACCESSORIES SHALL BE KEPT FREE FROM ALL FOREIGN MATTER AT ALL TIMES.
  - ANY DEFECTIVE, DAMAGED, OR UNSOUND PIPES SHALL BE REJECTED. ALL FOREIGN MATTER SHALL BE REMOVED FROM THE INSIDE OF THE PIPE BEFORE IT IS LOWERED INTO ITS POSITION IN THE TRENCH AND IT SHALL BE KEPT CLEAN BY APPROVED MEANS DURING AND AFTER LAYING. CARE SHALL BE TAKEN TO PREVENT FOREIGN MATTER FROM ENTERING THE JOINT SPACE. AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, THE OPEN ENDS OF THE PIPE SHALL BE PLUGGED OR COVERED BY APPROVED MEANS, AND NO TRENCH WATER SHALL BE PERMITTED TO ENTER THE PIPE.
  - ALL MATERIALS, WORKMANSHIP, AND TESTING FOR WATER SYSTEM CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE EFFINGHAM COUNTY STANDARD SPECIFICATIONS, LATEST EDITION.
  - ALL PHASES OF CONSTRUCTION SHALL COMPLY WITH THE GEORGIA RULES FOR SAFE DRINKING WATER, CHAPTER 391-3-5, THE GAEPD MINIMUM STANDARDS FOR PUBLIC WATER SYSTEMS, LATEST EDITION, THE AMERICAN WATER WORKS ASSOCIATION, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS.
  - ALL MATERIALS USED AND THAT COME INTO CONTACT WITH DRINKING WATER DURING ITS DISTRIBUTION SHALL NOT ADVERSELY AFFECT DRINKING WATER QUALITY AND PUBLIC HEALTH AND MUST BE CERTIFIED FOR CONFORMANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE / NATIONAL SANITARY FOUNDATION STANDARD 61 (ANSI/NSF STANDARD 61).
  - END OF THE DAY STORAGE OF EXCAVATION EQUIPMENT ALONG THE PROJECT ROUTE WILL BE ALLOWED ONLY AS APPROVED BY EFFINGHAM COUNTY REPRESENTATIVE, OTHERWISE ALL EQUIPMENT SHALL BE STORED IN THE DESIGNATED MATERIALS STORAGE AREAS.
  - TEMPORARY FENCING SHALL BE USED AROUND OPEN EXCAVATIONS AT ALL TIMES, EXCEPT AS NECESSARY FOR IMMEDIATE CONSTRUCTION. WHEN WORK IS NOT IN PROGRESS, FENCING SHALL ENCLOSE EXCAVATED AREAS. UTILITY TRENCHES SHALL BE BACKFILLED TO GRADE AT THE END OF THE DAY, ALLOWING FOR A MAXIMUM OF 10' (FENCE-PROTECTED) TRENCH TO REMAIN OPEN.
  - THE MINIMUM HORIZONTAL AND VERTICAL SEPERATION BETWEEN WATER LINES, SEWER LINES, AND STORM DRAINS SHALL CONFORM TO THE LATEST GEORGIA EPD REQUIREMENTS.
  - MAXIMUM JOINT DEFLECTION AND BENDING OF PVC PIPE SHALL NOT EXCEED MANUFACTURER'S SPECIFICATIONS AND INSTALLATION RECOMMENDATIONS.
  - AFTER DISINFECTION IS COMPLETED THE CHLORINATED DISINFECTED WATER SHALL NOT BE DISCHARGED INTO THE STORM WATER SYSTEM.
- SPECIAL NOTES:
- MEGA-LUG JOINT RESTRAINTS TO BE USED WHERE MECHANICALLY RESTRAINED JOINTS ARE NEEDED FOR PIPES, FITTINGS, AND VALVES
  - ALL PVC PIPE TO BE CLASS 235 C905 DR 18.
  - MIN. COVER OF WATERMAIN SHALL BE 36" FROM FINISH GRADE.
  - MAINTAIN ACCESS TO PROPERTIES ALONG PROJECT ROUTE AT ALL TIMES DURING CONSTRUCTION.
  - ALL ITEMS DISTURBED BY CONSTRUCTION OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THE THEIR ORIGINAL CONDITION.

SURVEY CONTROL		
	FOUND	SET
CONTROL NAIL		
IRON PIPE		
IRON REBAR		
HUB & TACK		
CONCRETE MONUMENT		
RIGHT-OF-WAY MARKER		
BENCHMARK		

FENCE LINE		
	EXISTING	PROPOSED
CHAIN LINK		
BARBED WIRE		
HOG WIRE		
WROUGHT IRON		
WOODEN		
SILT FENCE (SINGLE)		
SILT FENCE (DOUBLE)		

BUILDING		
	EXISTING	PROPOSED
BUILDING LINE		
BUILDING OVERHANG		
FINISHED FLOOR ELEVATION		

GROUND/DITCH		
	EXISTING	PROPOSED
SPOT ELEVATION		
CONTOURS		
CENTERLINE OF DITCH		
WATERS EDGE		

WATER		
	EXISTING	PROPOSED
WATERMAIN LINE		
BACKFLOW PREVENTER		
BLOW-OFF		
FIRE HYDRANT		
HOSE BIBB (SPIGOT)		
WELL		
WATER METER		
WATER MANHOLE		
WATER VALVE		

SANITARY SEWER		
	EXISTING	PROPOSED
CLEANOUT		
CENTER SANITARY MANHOLE		
GREASE TRAP		
SANITARY SEWER LINE		
FORCEMAIN LINE		

STORM		
	EXISTING	PROPOSED
PIPES		
DRAINAGE MANHOLE		
FLARED END SECTION		
INVERT ELEVATION		
CURB INLET TYPE A		
CURB INLET TYPE B		
CURB INLET TYPE C		
ROOF INLET		
GRATE INLET		
RIP RAP		

GAS		
	EXISTING	PROPOSED
GAS LINE		
GAS METER		
GAS MANHOLE		
GAS VALVE		

ELECTRIC		
	EXISTING	PROPOSED
POWER POLE		
GUY POLE		
LIGHT POLE		
GROUND LIGHT		
ELECTRICAL MANHOLE		
ELECTRICAL CONTROL BOX		
ELECTRICAL SERVICE METER		
ELECTRICAL TRANSFORMER		
UNDERGROUND POWER CABLE		
OVERHEAD POWER CABLE		

TELEPHONE		
	EXISTING	PROPOSED
TELEPHONE BOOTH		
TELEPHONE PEDISTAL		
TELEPHONE MANHOLE		
UNDERGROUND TELEPHONE		

ROADWAY		
	EXISTING	PROPOSED
CENTERLINE OF ROAD		
EDGE OF ASPHALT		
CURB & GUTTER		
EDGE OF CONCRETE		
EDGE OF GRAVEL		
EDGE OF DIRT		
EDGE OF DRIVEWAY		
GUARDRAIL		



Know what's below.  
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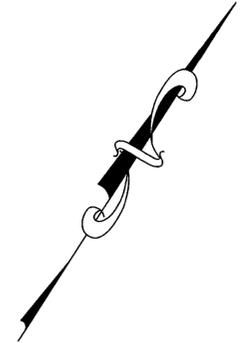
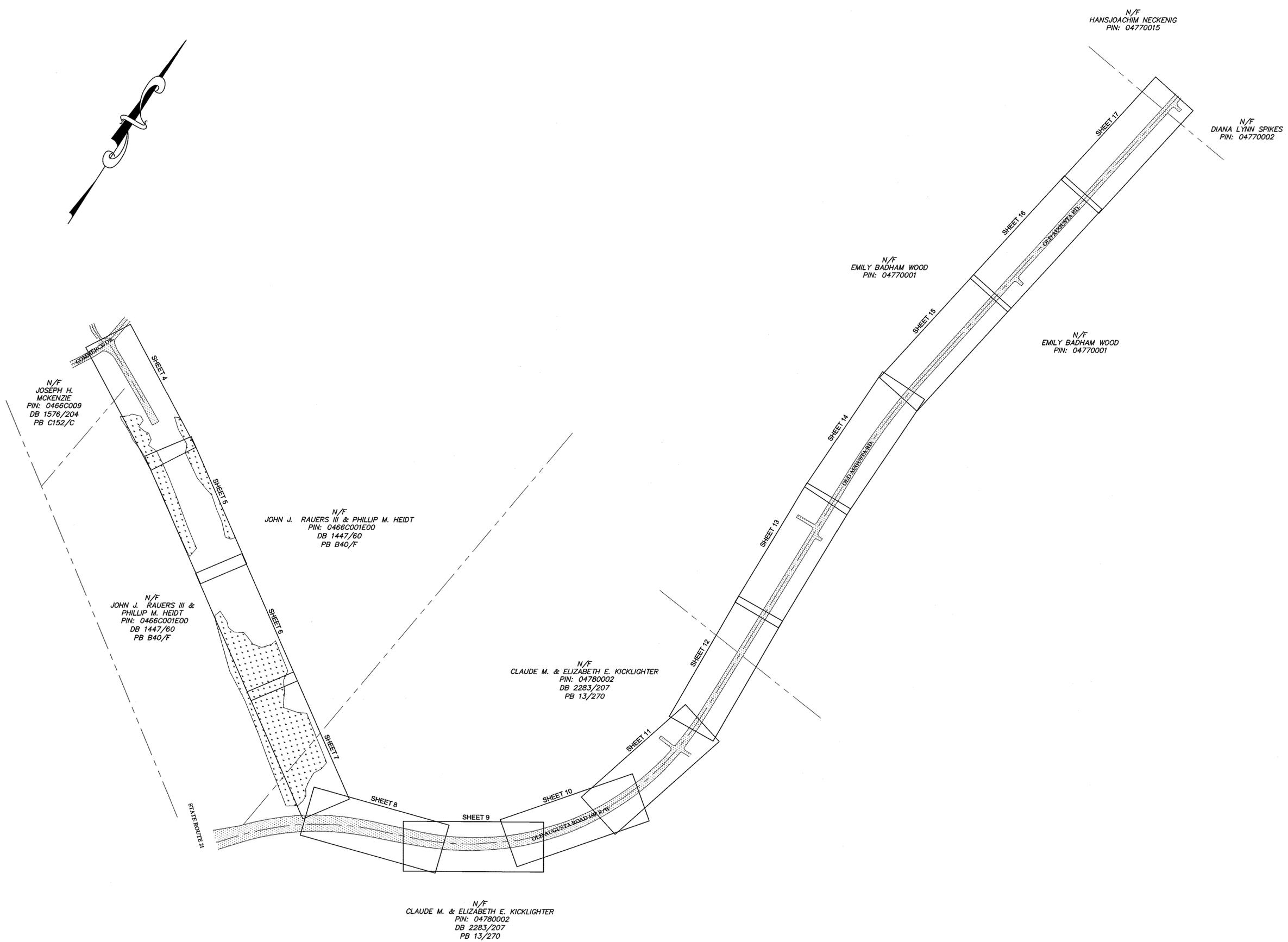
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COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

**GENERAL NOTES & LEGEND**

**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GA  
 Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

PROJECT NO.: 16-0004  
 DRAWN BY: CPR  
 DESIGNED BY: ABM  
 SURVEYED BY:  
 SURVEY DATE:  
 CHECKED BY: ABM  
 SCALE: N/A  
 DATE: MAY 2016

SHEET  
**2**  
 OF 27



N/F  
JOSEPH H. MCKENZIE  
PIN: 0466C009  
DB 1576/204  
PB C152/C

N/F  
JOHN J. RAUERS III & PHILLIP M. HEIDT  
PIN: 0466C001E00  
DB 1447/60  
PB B40/F

N/F  
JOHN J. RAUERS III & PHILLIP M. HEIDT  
PIN: 0466C001E00  
DB 1447/60  
PB B40/F

N/F  
CLAUDE M. & ELIZABETH E. KICKLIGHTER  
PIN: 04780002  
DB 2283/207  
PB 13/270

N/F  
CLAUDE M. & ELIZABETH E. KICKLIGHTER  
PIN: 04780002  
DB 2283/207  
PB 13/270

N/F  
EMILY BADHAM WOOD  
PIN: 04770001

N/F  
EMILY BADHAM WOOD  
PIN: 04770001

N/F  
HANS JOACHIM NECKENIG  
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N/F  
DIANA LYNN SPIKES  
PIN: 04770002



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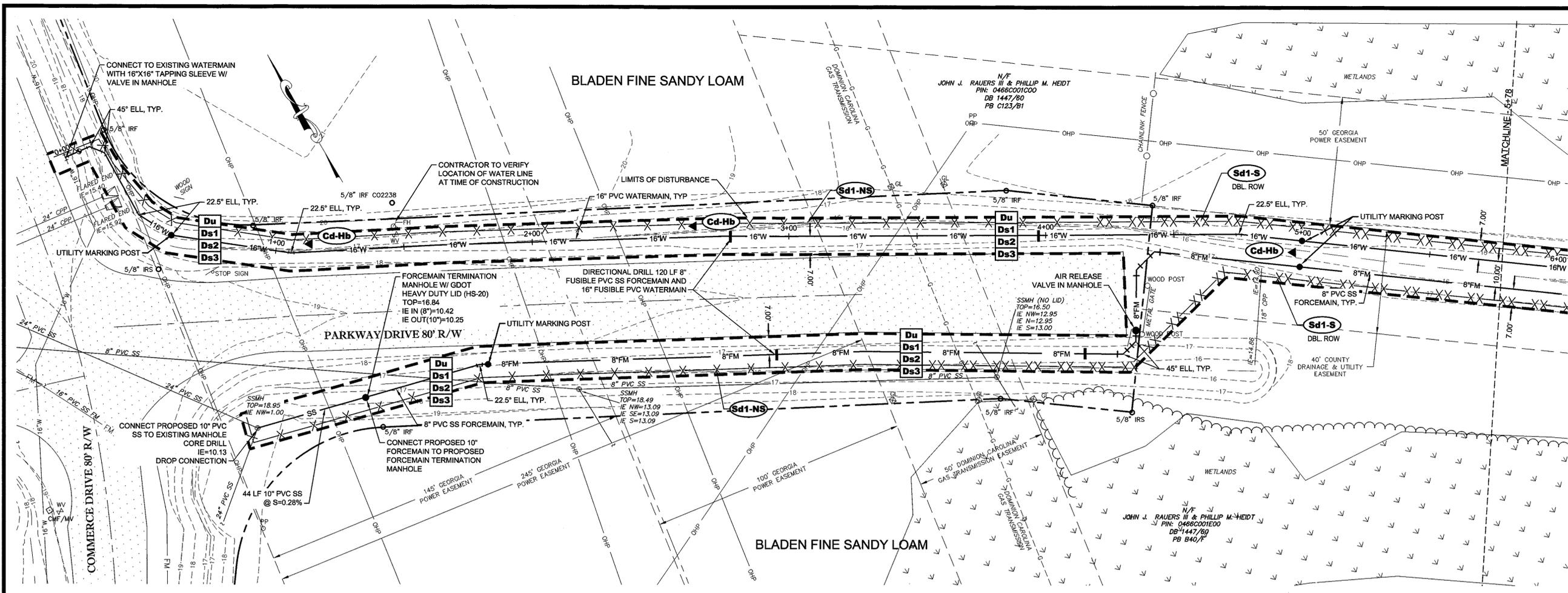
**KEY MAP**

**OLD AUGUSTA ROAD UTILITY EXTENSION**  
9TH G.M. DISTRICT  
EFFINGHAM COUNTY, GA  
Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

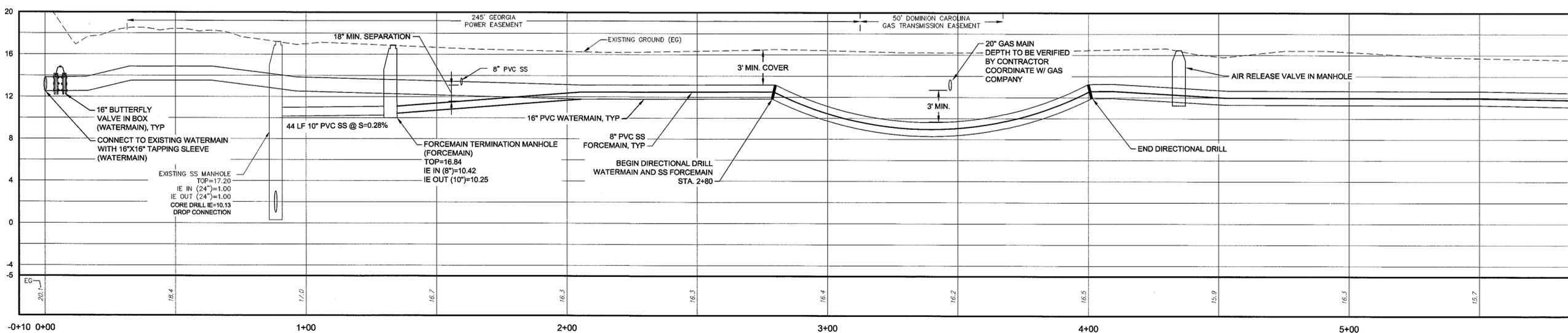
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DRAWN BY: CPR  
DESIGNED BY: ABM  
SURVEYED BY:  
SURVEY DATE:  
CHECKED BY: ABM  
SCALE: N/A  
DATE: MAY 2016

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**3**  
**OF 27**

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WATERMAIN AND FORCEMAIN  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC**  
 Alec B Metzger  
 Level II Certified Design Professional  
 C CERTIFICATION NUMBER: 000000252  
 ISSUED: 04/11/2016 E-FILES: 04/11/2016



GRAPHIC SCALE: 1"=20'-0"

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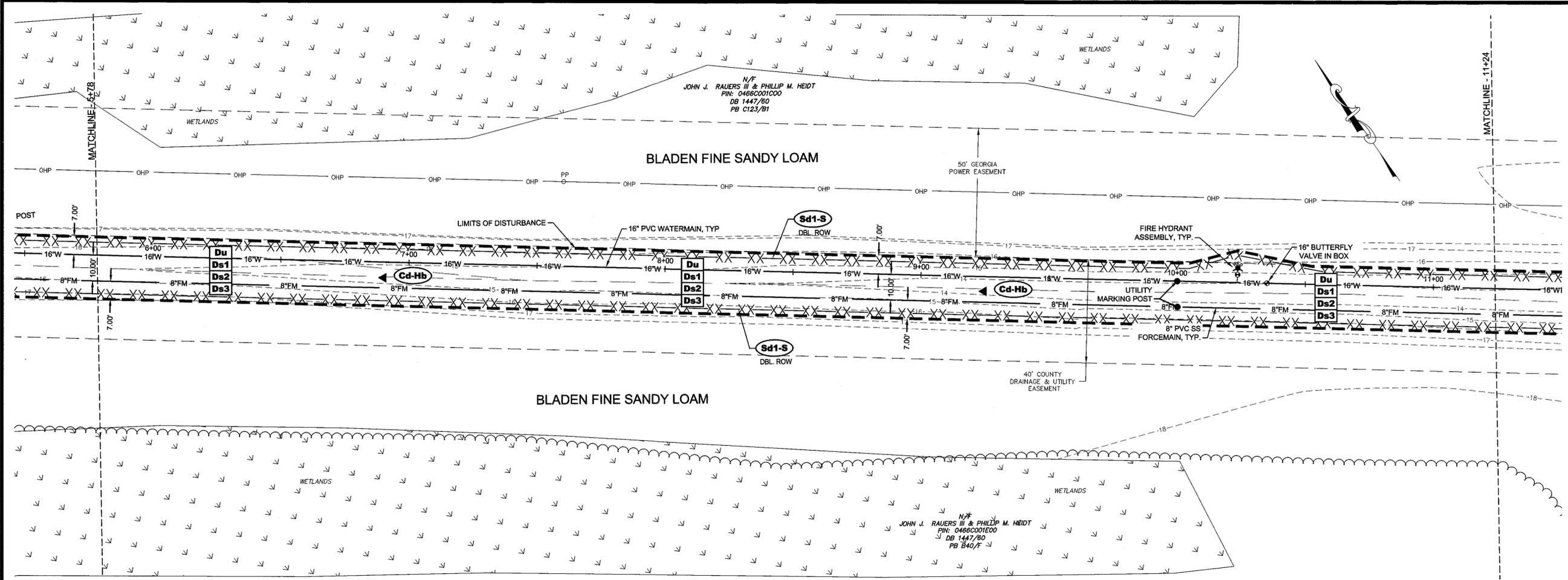
**PLAN & PROFILE**

**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
 EFFINGHAM COUNTY BOARD OF COMMISSIONERS

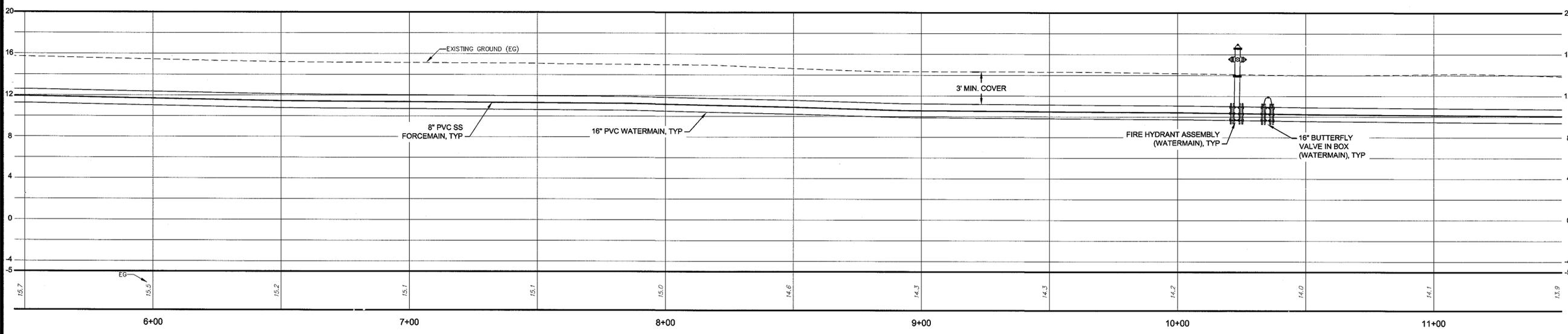
PROJECT NO.:	16-0004
DRAWN BY:	CPR
DESIGNED BY:	ABM
SURVEYED BY:	EMC
SURVEY DATE:	MARCH 2016
CHECKED BY:	ABM
SCALE:	1"=20'
DATE:	MAY 2016

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**4**  
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 Level II Certified Design Professional  
 Certification Number: 000008727  
 Issued: 04/12/2016 Expires: 04/12/2018



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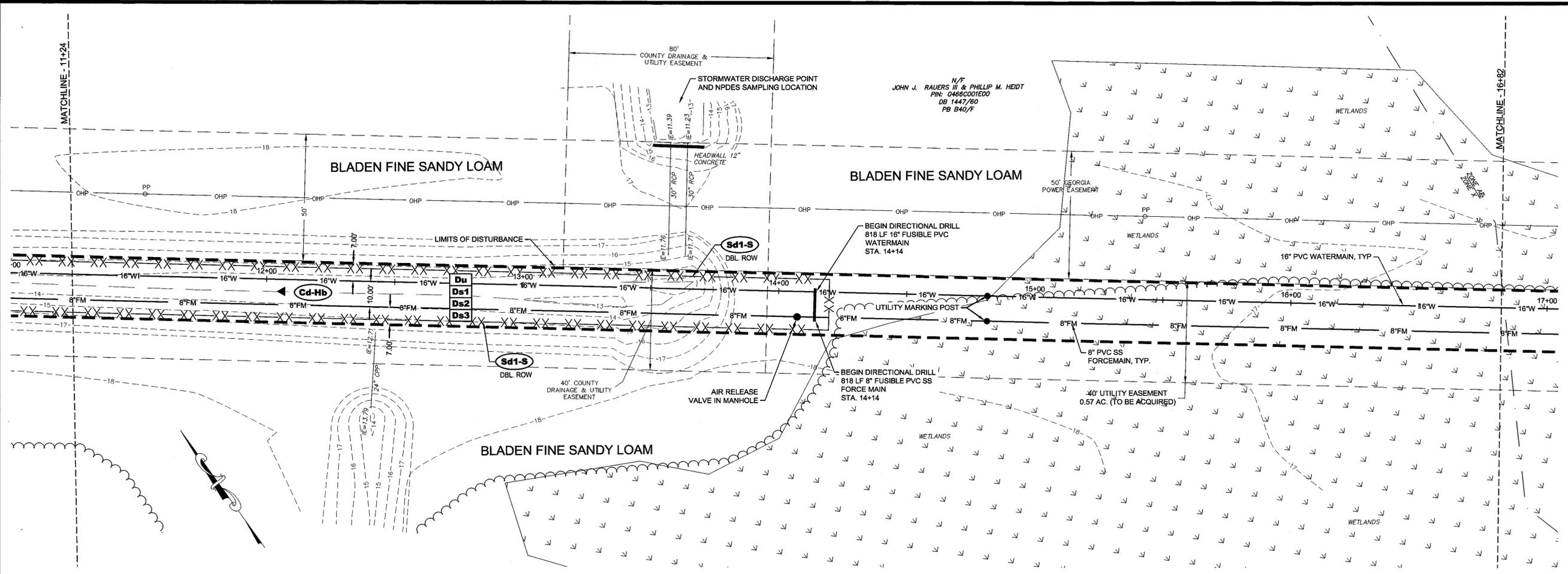
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 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA

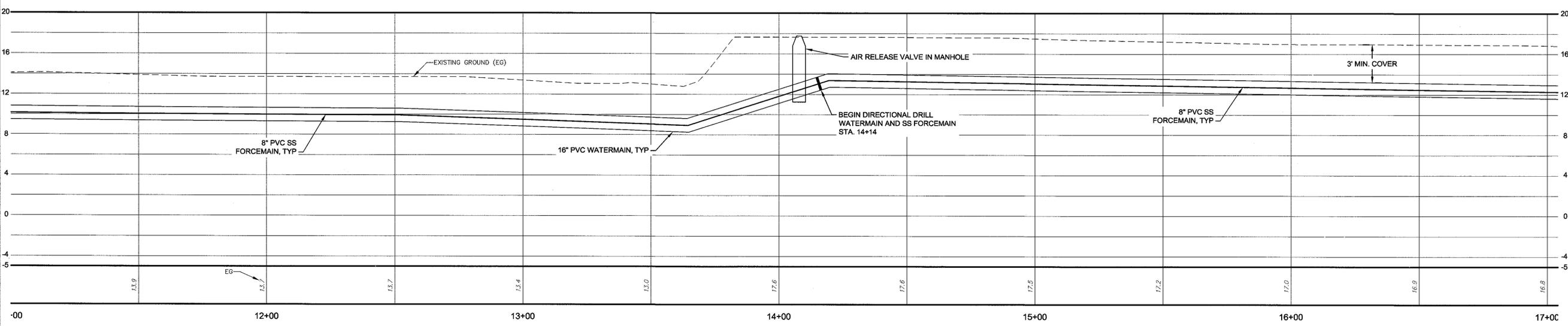
Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

PROJECT NO.: 16-0004  
 DRAWN BY: CPR  
 DESIGNED BY: ABM  
 SURVEYED BY: EMC  
 SURVEY DATE: MARCH 2016  
 CHECKED BY: ABM  
 SCALE: 1"=20'  
 DATE: MAY 2016

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**GSWCC** GEORGIA SOLID AND WATER CONSTRUCTION CONTRACTORS ASSOCIATION  
 Alec B Metzger  
 Level II Certified Design Professional  
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 License: 04112916 Expires: 04/12/2016



20' 10' 0'  
 GRAPHIC SCALE: 1"=20'-0"

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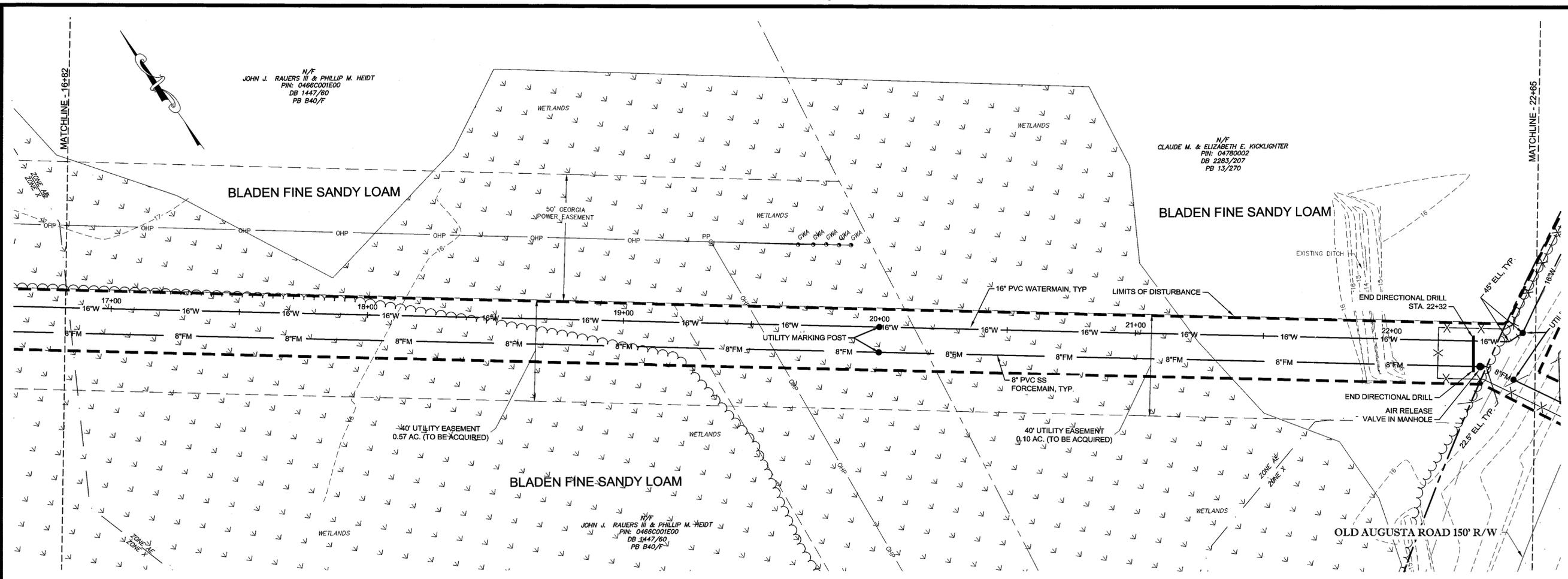
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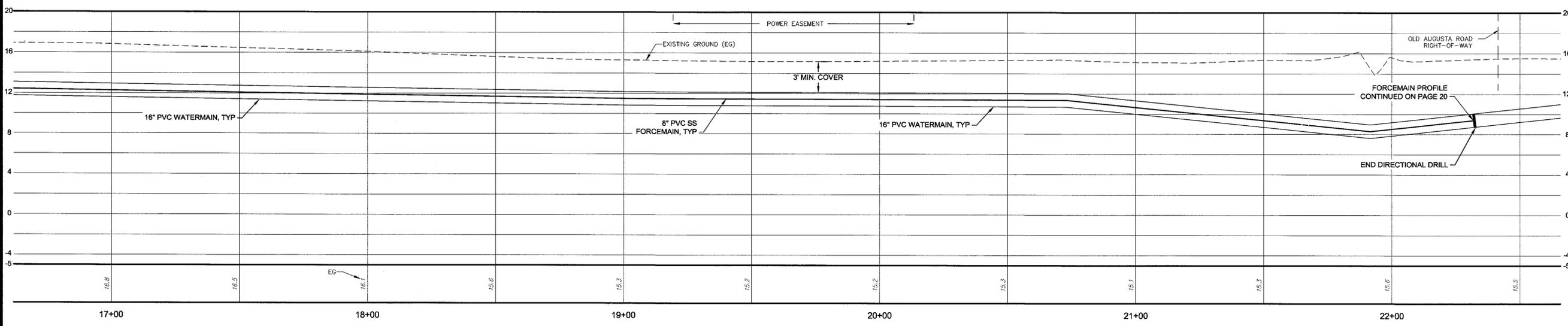
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**6**  
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WATERMAIN AND FORCEMAIN  
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 GEORGIA SURVEYING AND MAPPING BOARD  
 Level II Certified Design Professional  
 ALEC B. METZGER  
 CERTIFICATION NUMBER: 000008727  
 I.S. EXP. 04/12/2015 E.S. EXP. 04/12/2014



GRAPHIC SCALE: 1"=20'-0"

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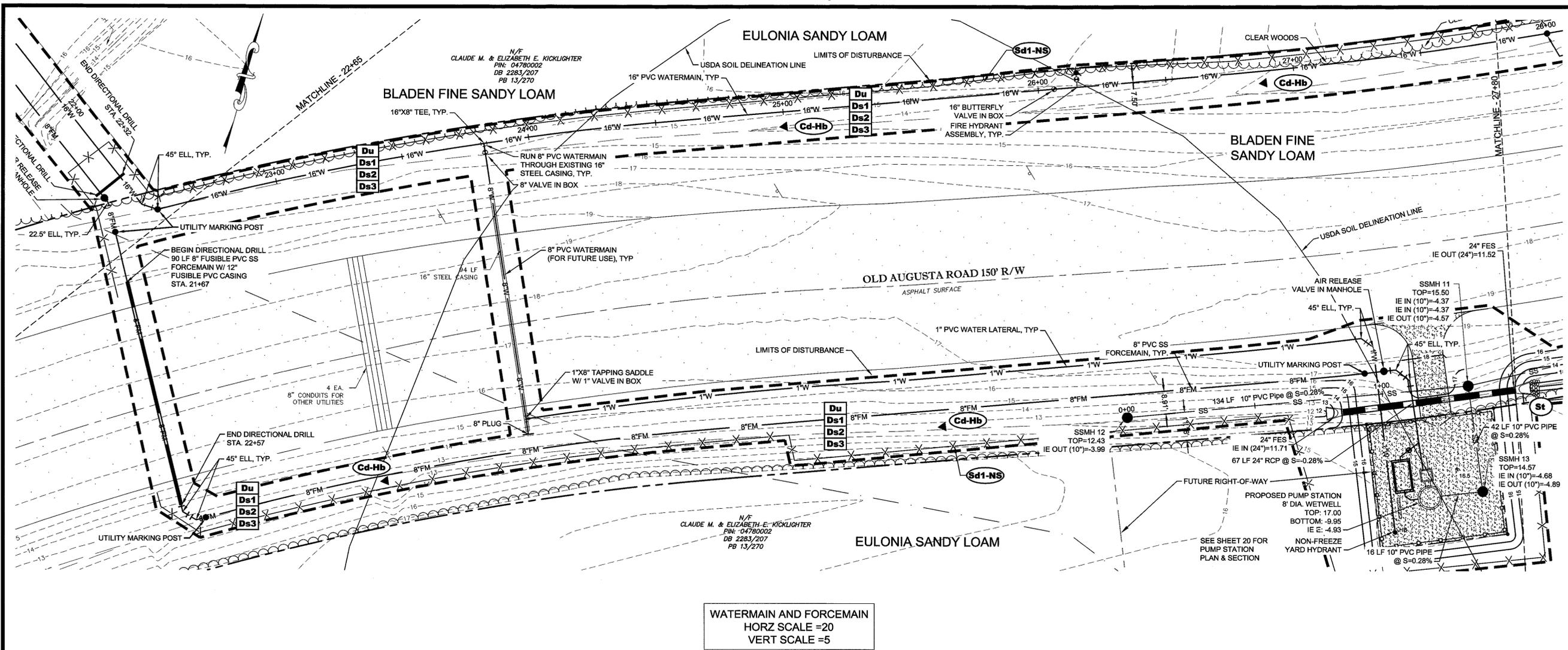
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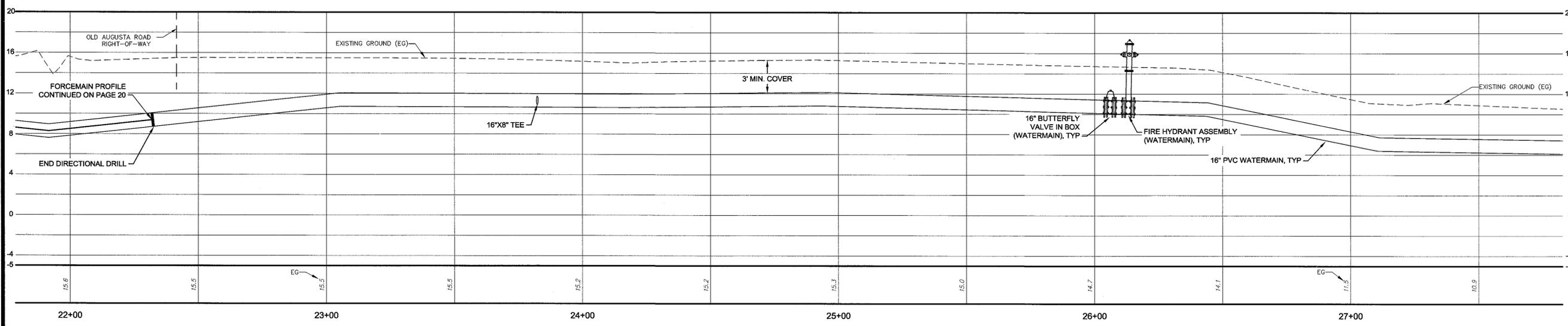
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**7**  
 OF 27

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 Signature: \_\_\_\_\_  
 Date: \_\_\_\_\_

**EMC ENGINEERING SERVICES, INC.**  
 10 CHATHAM CENTER SOUTH DR.  
 POST OFFICE BOX 8101  
 SAVANNAH, GEORGIA 31412  
 PHONE: (912) 232-6533  
 FAX: (912) 232-4560  
 www.emc-eng.com

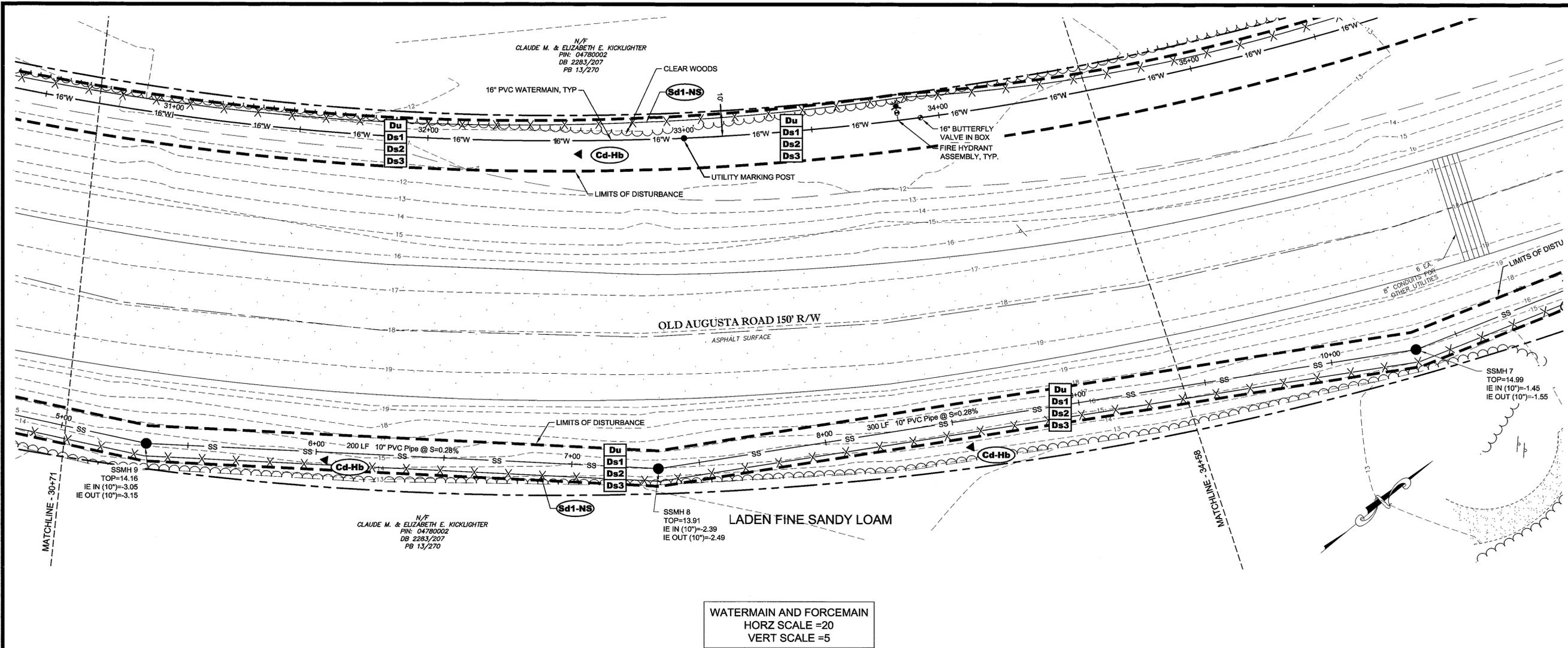
**EMC ENGINEERING SERVICES, INC.**  
 CIVIL  
 MARINE  
 ENVIRONMENTAL  
 SURVEY  
 ALBANY, ATLANTA, AUGUSTA, BRUNSWICK,  
 COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

**PLAN & PROFILE**  
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

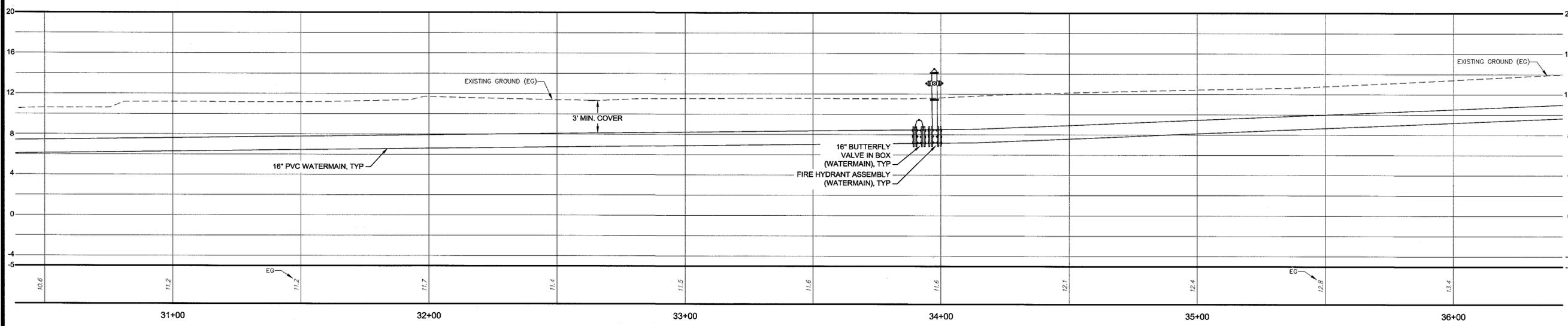
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DRAWN BY:	CPR
DESIGNED BY:	ABM
SURVEYED BY:	EMC
SURVEY DATE:	MARCH 2016
CHECKED BY:	ABM
SCALE:	1"=20'
DATE:	MAY 2016

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WATERMAIN AND FORCEMAIN  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC**  
 Georgia State Water Construction Contractors Association  
 Alec B Metzger  
 Level II Certified Design Professional  
 Certification Number: 000002932  
 Issued: 04/11/2015 Expires: 04/11/2021  
 Signature: \_\_\_\_\_



GRAPHIC SCALE: 1"=20'-0"

**EMC ENGINEERING SERVICES, INC.**  
 10 CHATHAM CENTER SOUTH DR.  
 POST OFFICE BOX 8101  
 SAVANNAH, GEORGIA 31412  
 PHONE: (912) 232-6833  
 FAX: (912) 233-4590  
 www.emc-eng.com

**EMC**  
 CIVIL  
 MARINE  
 ENVIRONMENTAL  
 SURVEY

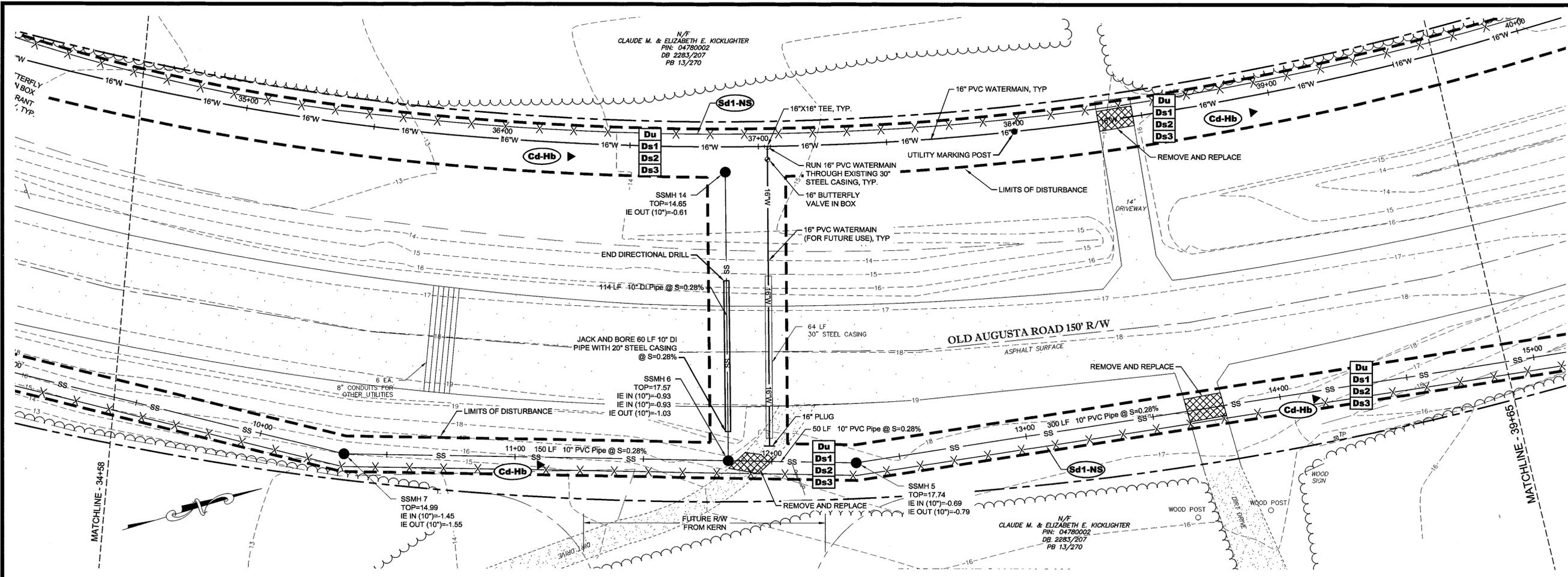
ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH STATESBORO & VALDOSTA

**PLAN & PROFILE**  
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

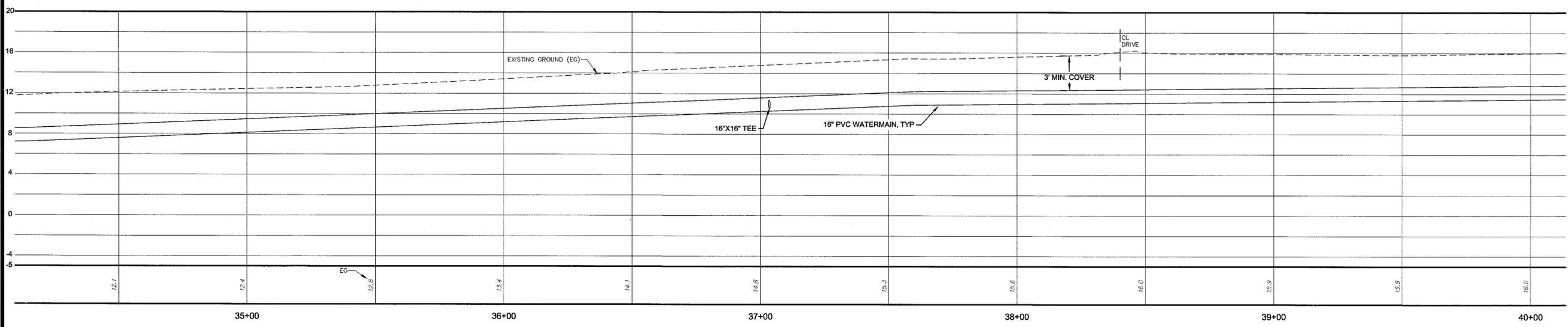
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DRAWN BY:	CPR
DESIGNED BY:	ABM
SURVEYED BY:	EMC
SURVEY DATE:	MARCH 2016
CHECKED BY:	ABM
SCALE:	1"=20'
DATE:	MAY 2016

**SHEET**  
**10**  
 OF 27

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WATERMAIN AND FORCEMAIN  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC** GEORGIA SURVEYING AND WATER CONSTRUCTION CONSTRUCTION COMPANY

Alec B Metzger  
Level II Certified Design Professional

CERTIFICATION NUMBER: 00000097  
ISSUED: 04/12/05 EXPIRES: 04/12/16

Signature: \_\_\_\_\_



GRAPHIC SCALE: 1"=20'-0"

**EMC SERVICES, INC.**

10 GATHAM CENTER SOUTH DR.  
SUITE 100 (31405) 81 81  
30300 WOODBRIDGE BLVD  
SAVANNAH, GEORGIA 31412  
PHONE: (912) 233-6533  
FAX: (912) 233-4860  
www.emc-eng.com

CIVIL  
MARINE  
ENVIRONMENTAL  
SURVEY

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK,  
COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

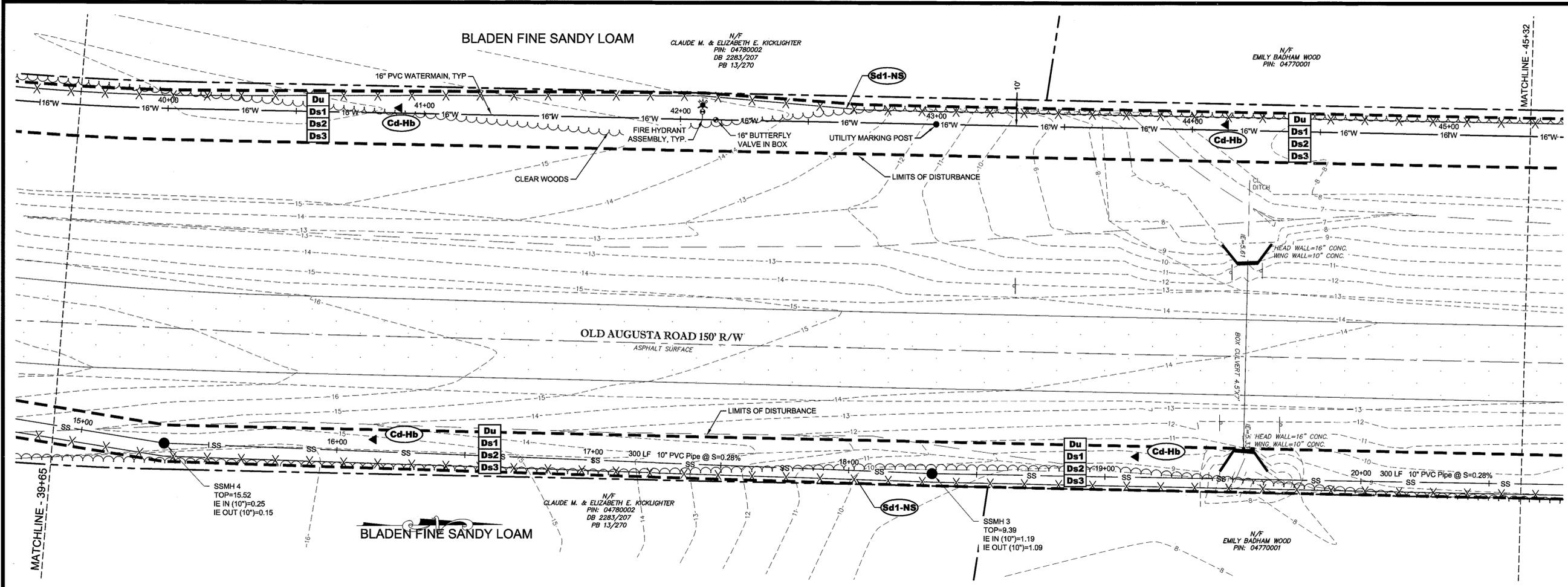
**PLAN & PROFILE**

**OLD AUGUSTA ROAD UTILITY EXTENSION**  
9TH G.M. DISTRICT  
EFFINGHAM COUNTY, GEORGIA  
Prepared for:  
EFFINGHAM COUNTY BOARD OF COMMISSIONERS

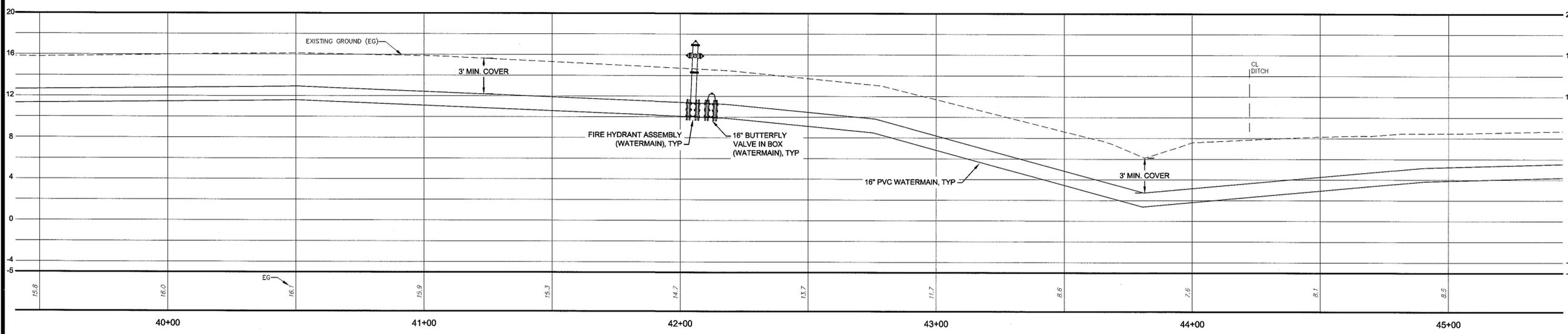
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SCALE:	1"=20'
DATE:	MAY 2016

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OF 27

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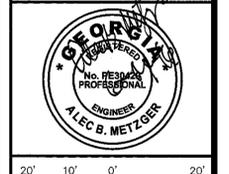


WATERMAIN AND FORCEMAIN  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC** GEORGIA SOCIETY OF PROFESSIONAL ENGINEERS  
 ALEC B. METZGER  
 Level II Certified Design Professional  
 Certification Number: 000008757  
 Issued: 04/11/2016 Expires: 04/11/2021



**EMC ENGINEERING SERVICES, INC.**  
 10 OAKTHAM CENTER SOUTH DR.  
 SUITE 100 (CROSSING 8101)  
 SAVANNAH, GEORGIA 31412  
 PHONE: (912) 232-6533  
 FAX: (912) 233-4590  
 www.emc-eng.com

CIVIL  
MARINE  
ENVIRONMENTAL  
SURVEY

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK,  
COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

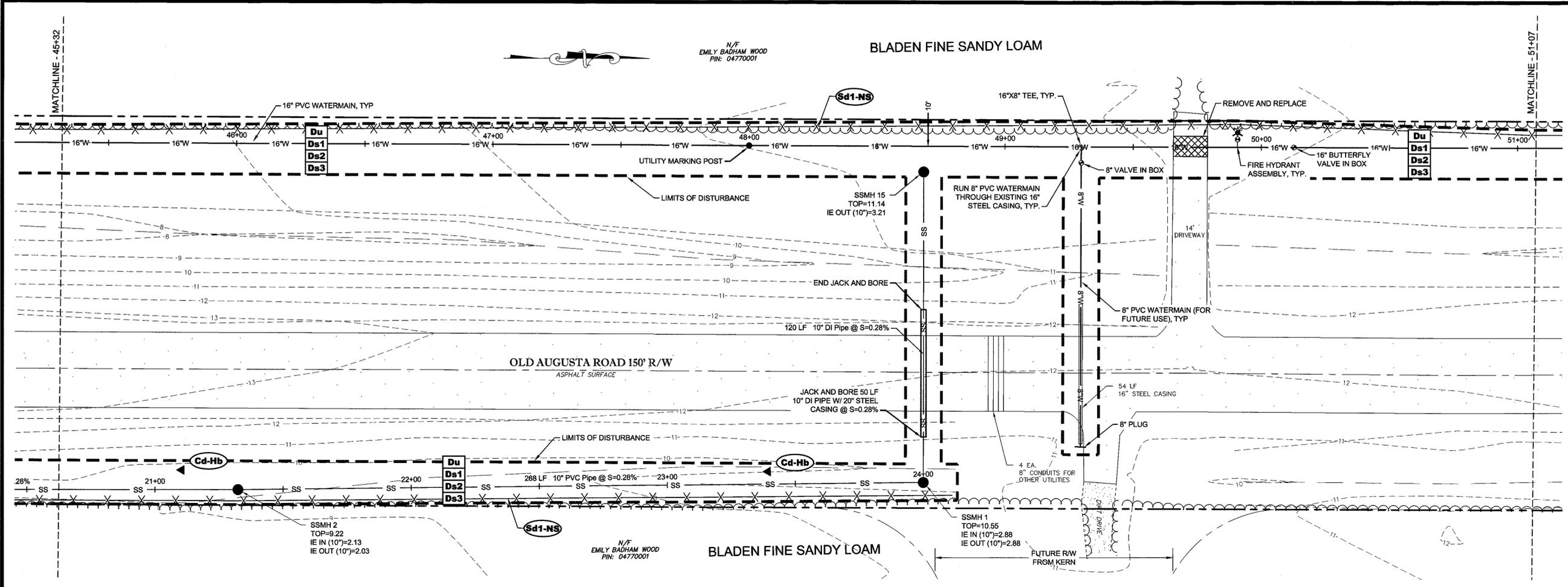
**PLAN & PROFILE**

**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
 EFFINGHAM COUNTY BOARD OF COMMISSIONERS

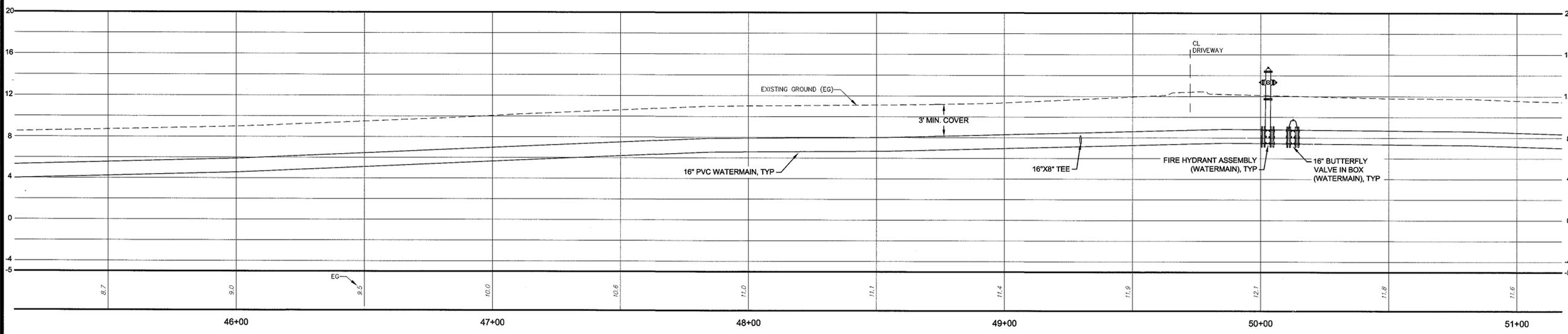
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DATE:	MAY 2016

**SHEET**  
**12**  
 OF 27

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WATERMAIN AND FORCEMAIN  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE



GRAPHIC SCALE: 1"=20'-0"

**EMC ENGINEERING SERVICES, INC.**  
 10 CHATHAM CENTER SOUTH DR.  
 POST OFFICE BOX 8101  
 SAVANNAH, GEORGIA 31142  
 PHONE: (912) 232-5533  
 FAX: (912) 232-5580  
 www.emc-eng.com

CIVIL  
 MARINE  
 ENVIRONMENTAL  
 SURVEY

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK,  
 COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

**PLAN & PROFILE**

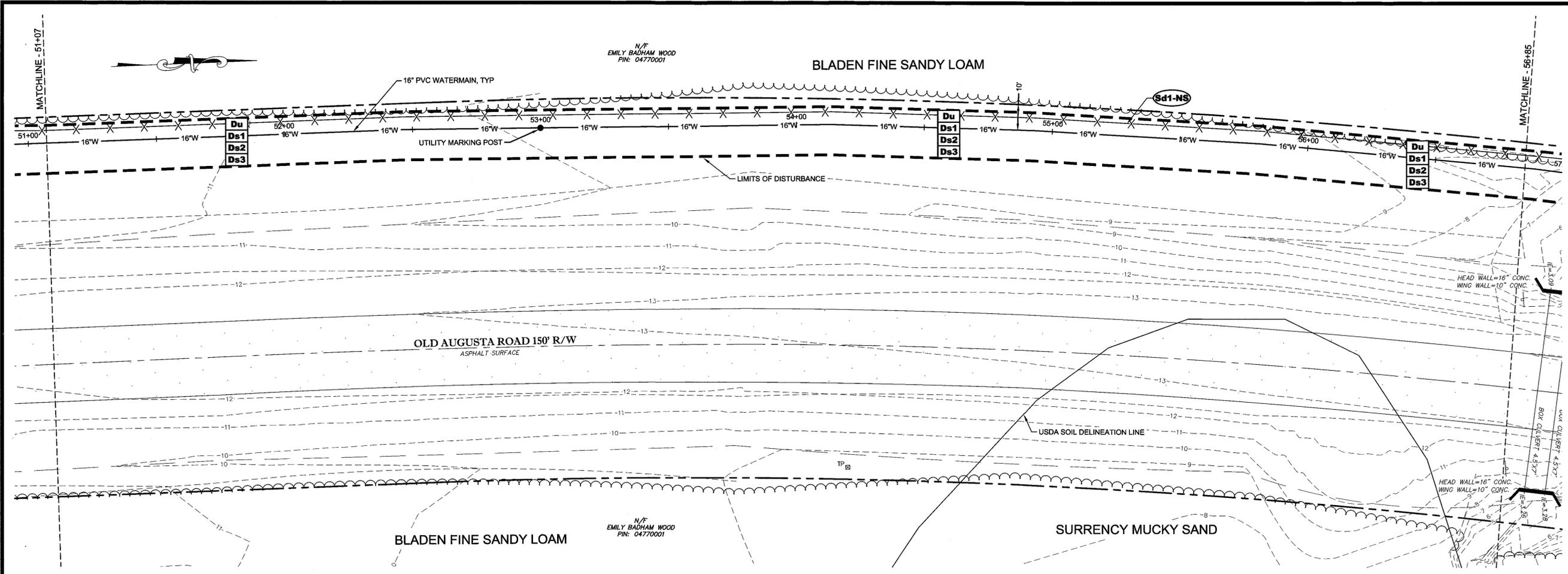
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA

Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

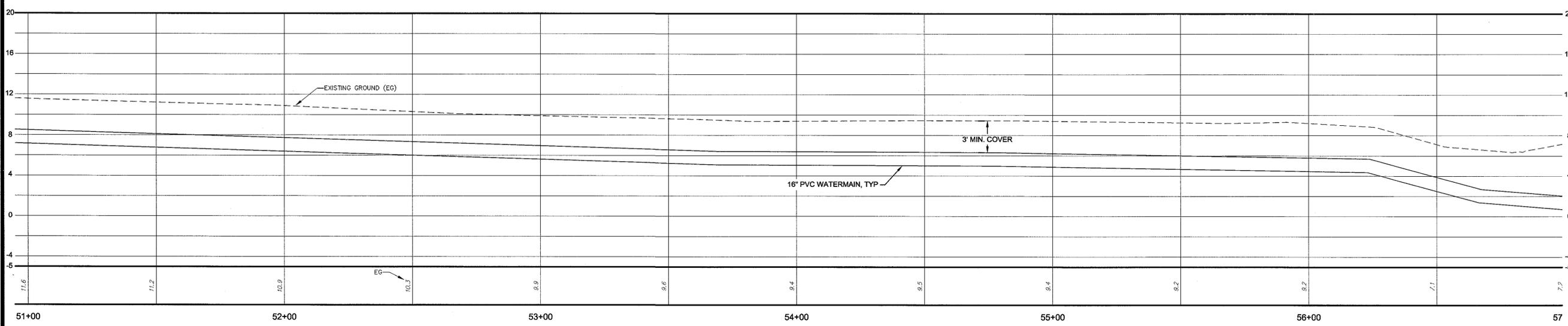
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SURVEY DATE:	MARCH 2016
CHECKED BY:	ABM
SCALE:	1"=20'
DATE:	MAY 2016

**SHEET**  
**13**  
 OF 27

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WATERMAIN AND FORCEMAIN  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC** GEORGIA SOLID AND WATER CONSERVATION COMMISSION

Alec B Metzger  
Level II Certified Design Professional

Certification Number: 000008732  
Issued: 04/11/2015 Expires: 04/11/2019

Signature: \_\_\_\_\_



GRAPHIC SCALE: 1"=20'-0"

**EMC ENGINEERING SERVICES, INC.**

10 CHEROKEE CENTER SOUTH DR.  
PO BOX 8101  
SAVANNAH, GEORGIA 31412  
PHONE: (912) 232-6533  
FAX: (912) 232-4560  
www.emc-eng.com

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ENVIRONMENTAL  
SURVEY

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK,  
COLUMBUS, SAVANNAH STATESBORO & VALDOSTA

**PLAN & PROFILE**

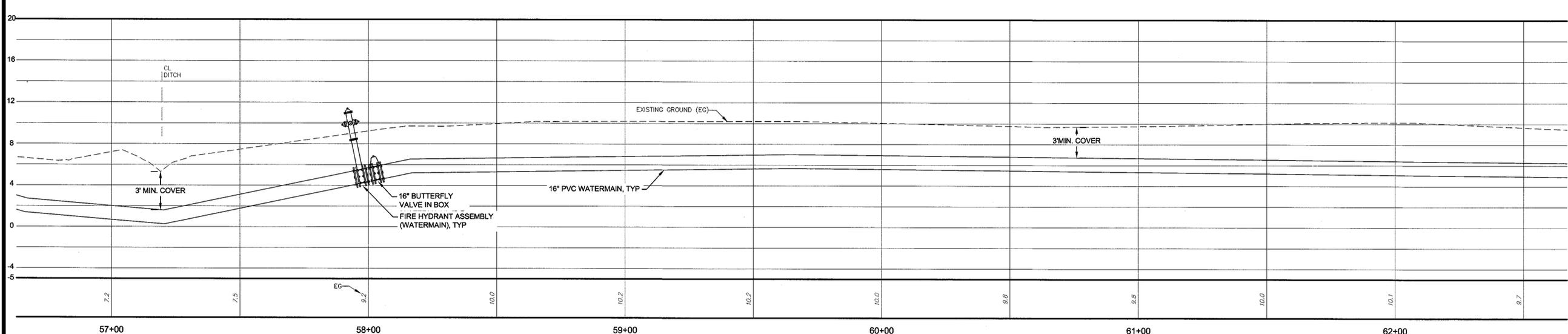
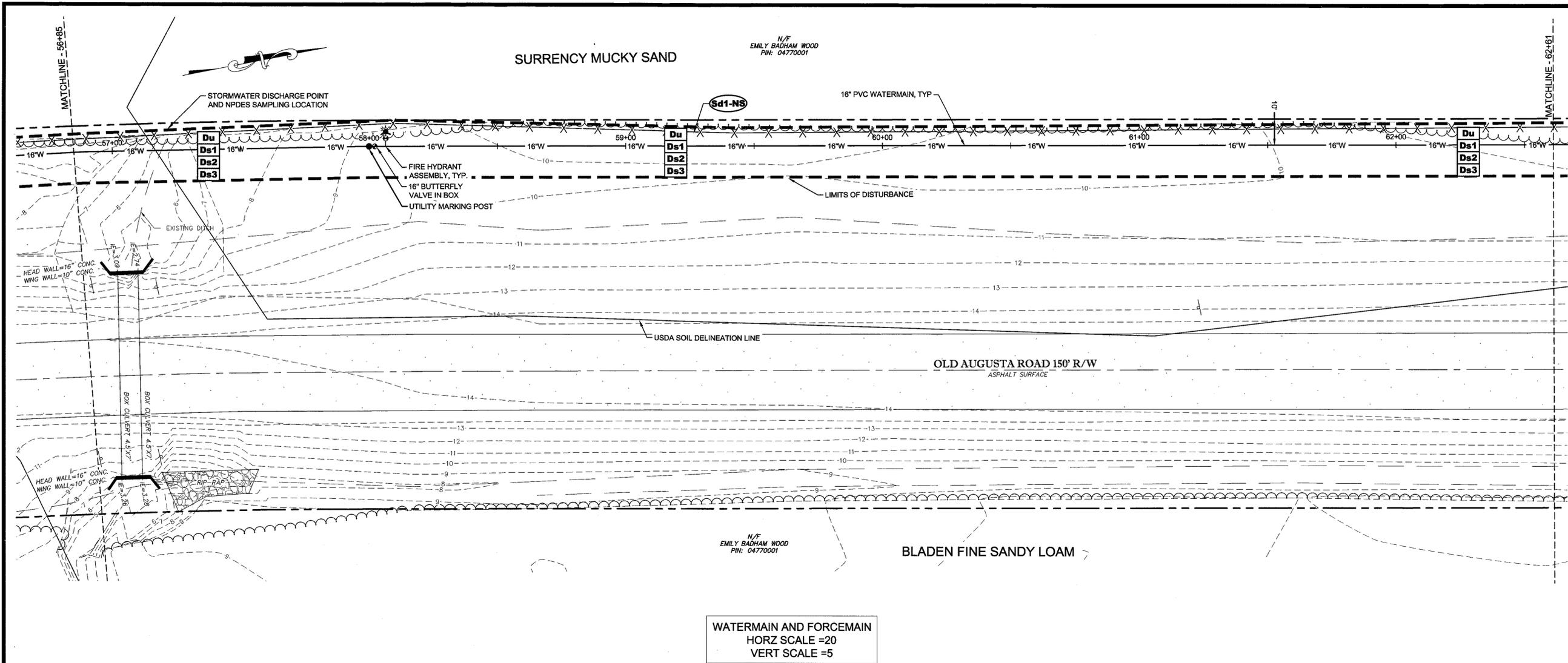
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
9TH G.M. DISTRICT  
EFFINGHAM COUNTY, GEORGIA

Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

PROJECT NO.:	16-0004
DRAWN BY:	CPR
DESIGNED BY:	ABM
SURVEYED BY:	EMC
SURVEY DATE:	MARCH 2016
CHECKED BY:	ABM
SCALE:	1"=20'
DATE:	MAY 2016

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OF 27

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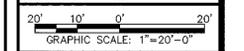


WATERMAIN AND FORCEMAIN  
 HORZ SCALE =20  
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NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC**  
 GEORGIA SOIL AND WATER CONSERVATION COMMISSION  
 Alec B Metzger  
 Level II Certified Design Professional  
 C CERTIFICATION NUMBER: 0000003757  
 ISSUED: 04/11/2016 EXPIRES: 04/11/2016



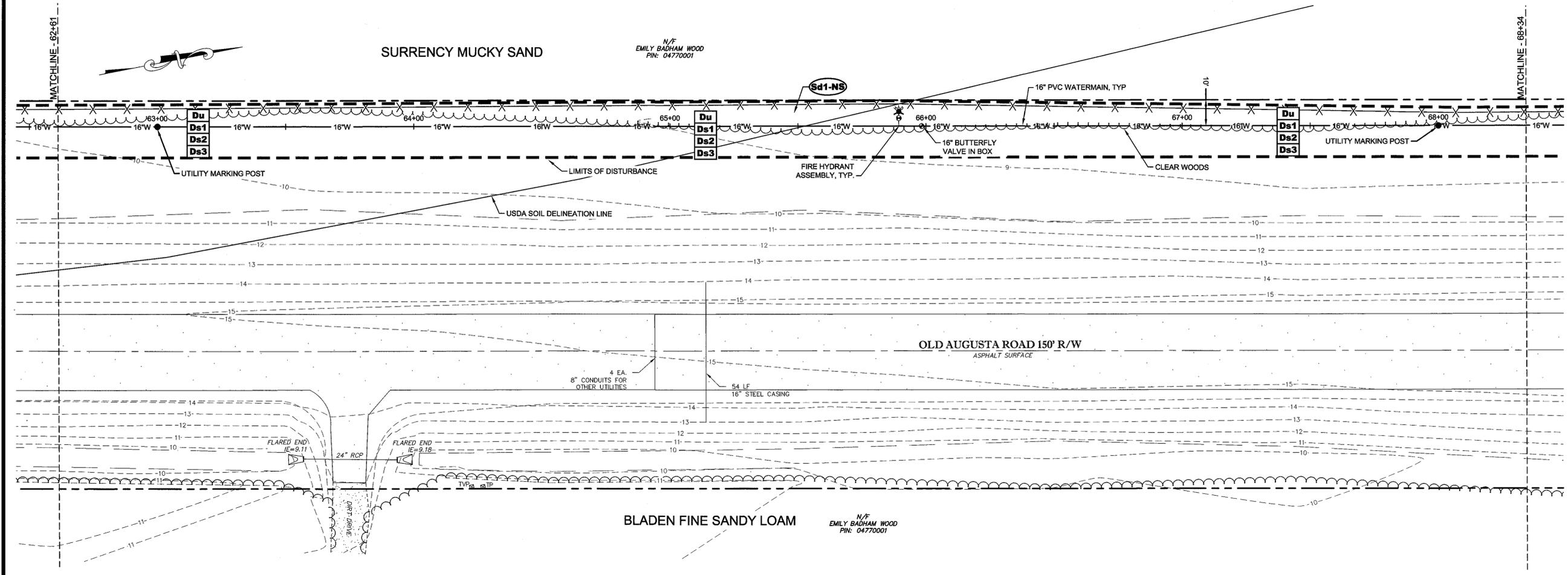
**EMC ENGINEERING SERVICES, INC.**  
 10 CHATHAM CENTER SOUTH DR.  
 SUITE 100 (31405)  
 POST OFFICE BOX 8101  
 SAVANNAH, GEORGIA 31412  
 CIVIL MARINE ENVIRONMENTAL SURVEY  
 FAX: (912) 233-4890  
 www.emc-eng.com

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

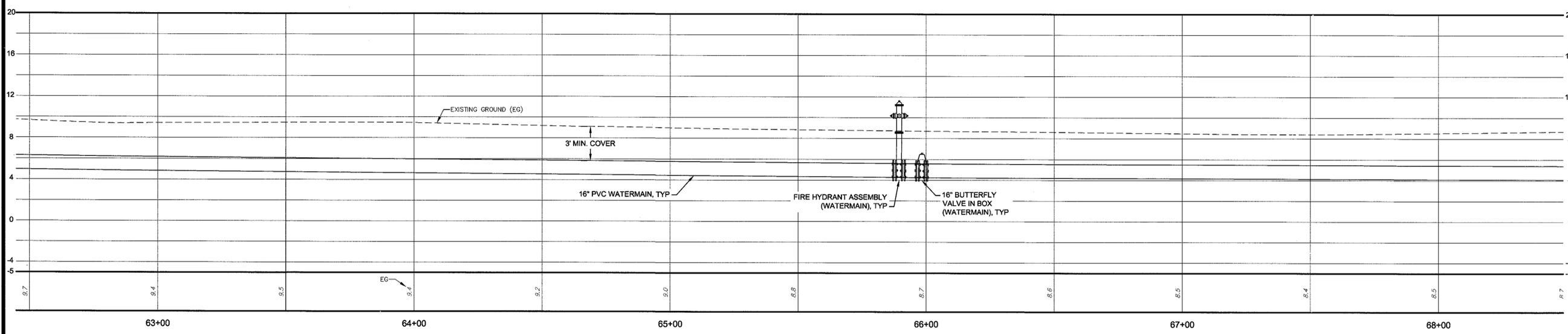
**PLAN & PROFILE**  
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

PROJECT NO.:	16-0004
DRAWN BY:	CPR
DESIGNED BY:	ABM
SURVEYED BY:	EMC
SURVEY DATE:	MARCH 2016
CHECKED BY:	ABM
SCALE:	1"=20'
DATE:	MAY 2016

**SHEET**  
**15**  
 OF 27



WATERMAIN AND FORCEMAIN  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC** GEORGIA SOIL AND WATER CONSERVATION COMMISSION  
 Alec B Metzger  
 Level II Certified Design Professional  
 Certification Number: 000000257  
 Issued: 04/11/2016 Expires: 04/11/2018  
 Signature: \_\_\_\_\_



20' 10' 0' 20'  
 GRAPHIC SCALE: 1"=20'-0"

**EMC ENGINEERING SERVICES, INC.**  
 10 CHATHAM CENTER SOUTH DR.  
 SUITE 100 (3rd FLOOR) 8101  
 SAVANNAH, GEORGIA 31412  
 PHONE: (912) 232-6533  
 FAX: (912) 232-4590  
 www.emc-eng.com

**EMC**  
 CIVIL  
 MARINE  
 ENVIRONMENTAL  
 SURVEY

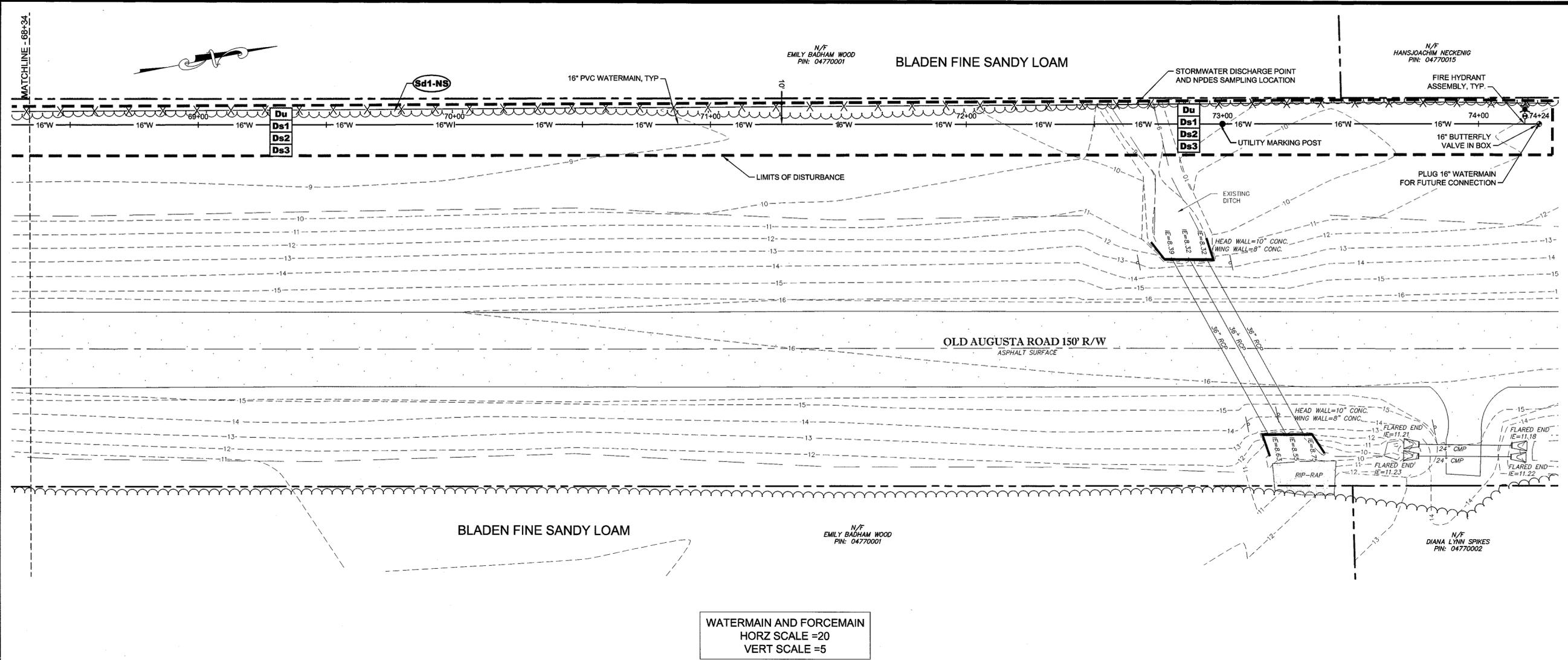
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 COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

**PLAN & PROFILE**  
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

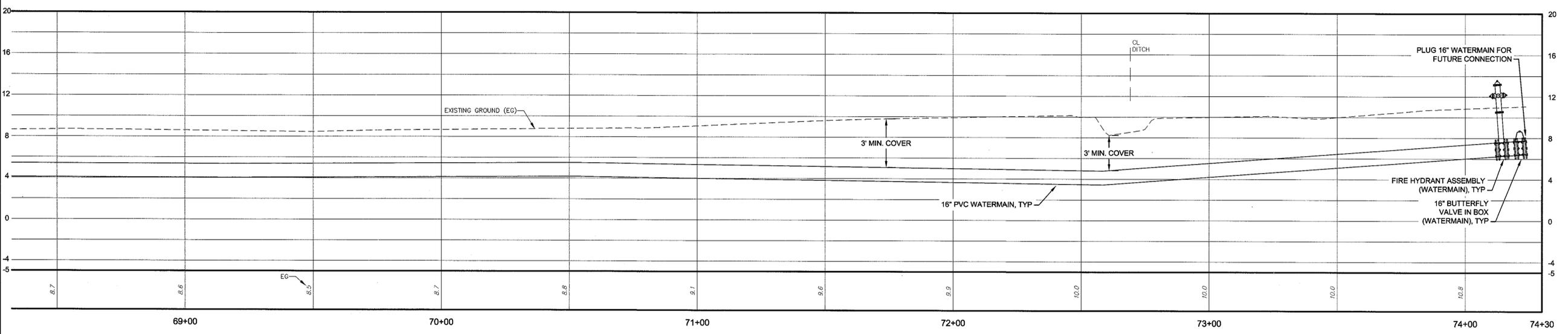
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 DATE: MAY 2016

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**16**  
 OF 27

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WATERMAIN AND FORCEMAIN  
 HORZ SCALE =20  
 VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC**  
 Level II Certified Design Professional  
 Certification Number: 0000002182  
 Issued: 04/12/2015 Expires: 04/12/2018



GRAPHIC SCALE: 1"=20'-0"

**EMC ENGINEERING SERVICES, INC.**  
 10 CHATHAM CENTER SOUTH DR.  
 SUITE 100 (31405)  
 POST OFFICE BOX 6101 14142  
 WADSWORTH, GEORGIA 30150  
 PHONE: (770) 973-3333  
 FAX: (770) 233-4580  
 www.emc-eng.com

CIVIL  
 MARINE  
 ENVIRONMENTAL  
 SURVEY

ALBANY ATLANTA AUGUSTA BRUNSWICK  
 COLUMBUS SAVANNAH STATESBORO & VALDOSTA

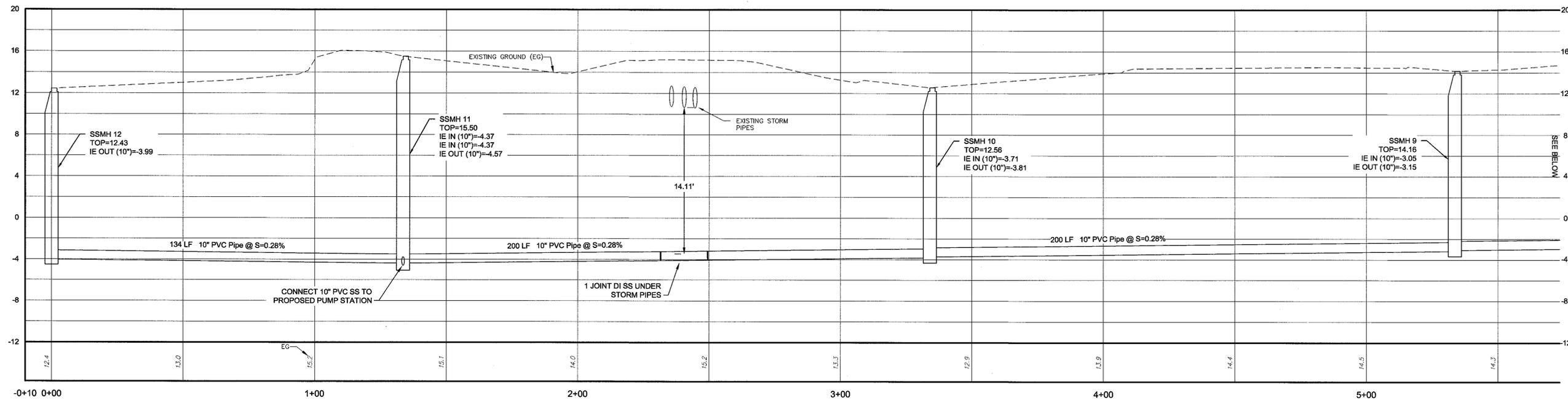
**PLAN & PROFILE**  
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
 EFFINGHAM COUNTY BOARD OF COMMISSIONERS

PROJECT NO.:	16-0004
DRAWN BY:	CPR
DESIGNED BY:	ABM
SURVEYED BY:	EMC
SURVEY DATE:	MARCH 2016
CHECKED BY:	ABM
SCALE:	1"=20'
DATE:	MAY 2016

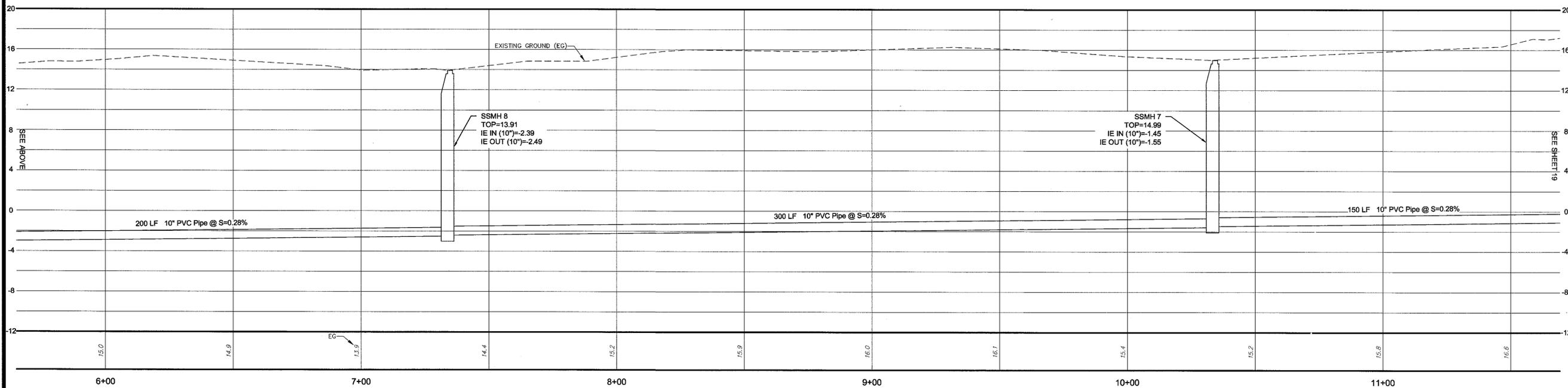
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 OF 27

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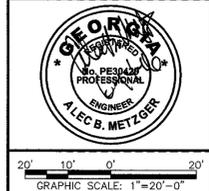
SANITARY SEWER  
HORZ SCALE =20  
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SANITARY SEWER  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE



**EMC ENGINEERING SERVICES, INC.**  
 10 CHERRY CENTER SOUTH DR.  
 SUITE 100  
 POST OFFICE BOX 8101  
 SAVANNAH, GEORGIA 31412  
 PHONE: (912) 232-6533  
 FAX: (912) 232-6580  
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CIVIL  
MARINE  
ENVIRONMENTAL  
SURVEY

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK,  
COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

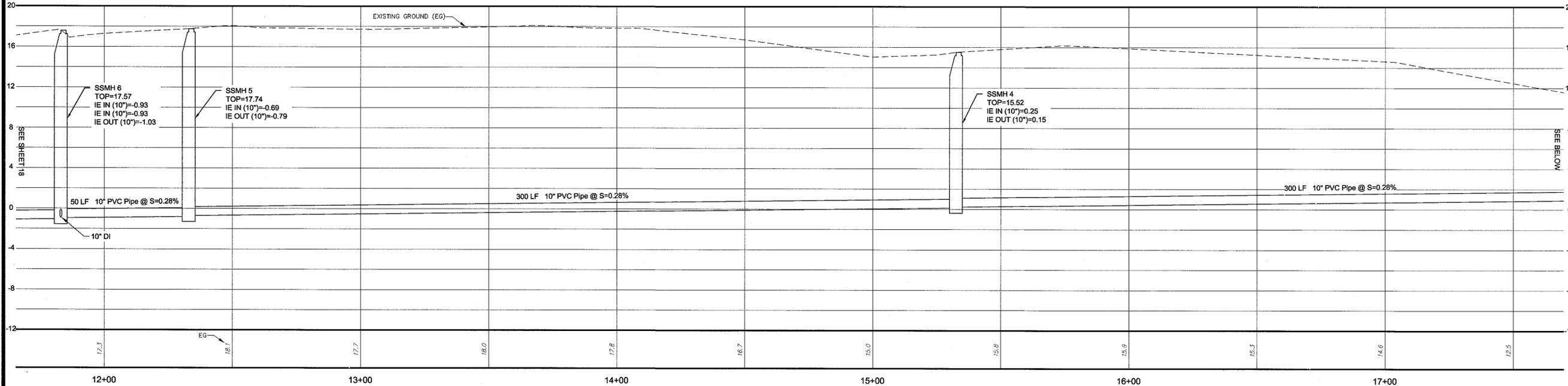
**SEWER PROFILES**  
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

PROJECT NO.: 16-0004  
 DRAWN BY: CPR  
 DESIGNED BY: ABM  
 SURVEYED BY: EMC  
 SURVEY DATE: MARCH 2016  
 CHECKED BY: ABM  
 SCALE: 1"=20'  
 DATE: MAY 2016

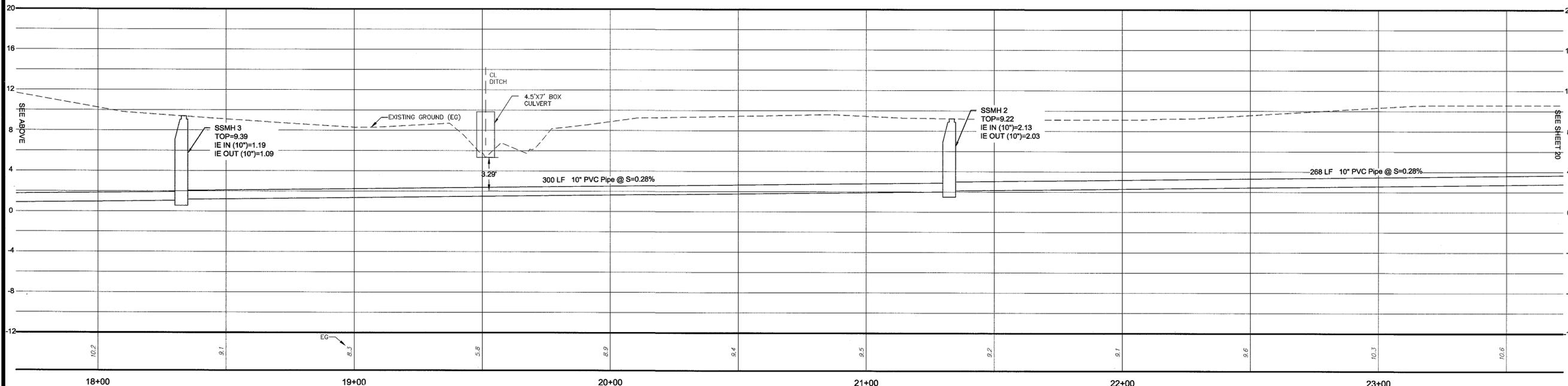
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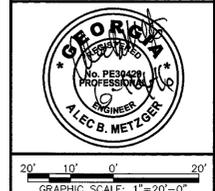
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HORZ SCALE =20  
VERT SCALE =5



SANITARY SEWER  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE



**EMC ENGINEERING SERVICES, INC.**  
 10 CHATHAM CENTER SOUTH DR.  
 SUITE 100  
 POST OFFICE BOX 8101  
 SAVANNAH, GEORGIA 31412  
 PHONE: (912) 232-6533  
 FAX: (912) 233-4890  
 www.emc-eng.com

CIVIL  
MARINE  
ENVIRONMENTAL  
SURVEY

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK,  
COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

**SEWER PROFILES**

**OLD AUGUSTA ROAD UTILITY EXTENSION**  
**9TH G.M. DISTRICT**  
**EFFINGHAM COUNTY, GEORGIA**

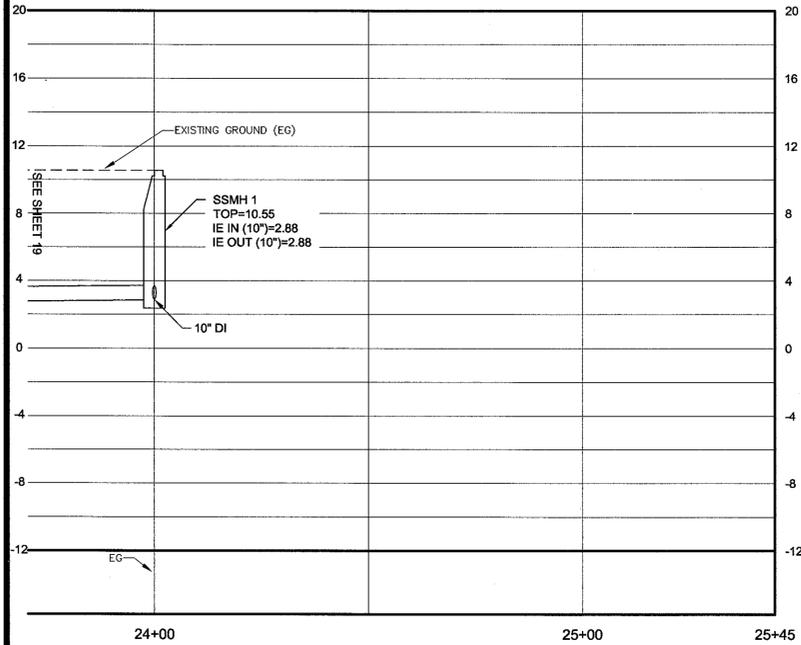
Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

PROJECT NO.:	16-0004
DRAWN BY:	CPR
DESIGNED BY:	ABM
SURVEYED BY:	EMC
SURVEY DATE:	MARCH 2016
CHECKED BY:	ABM
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DATE:	MAY 2016

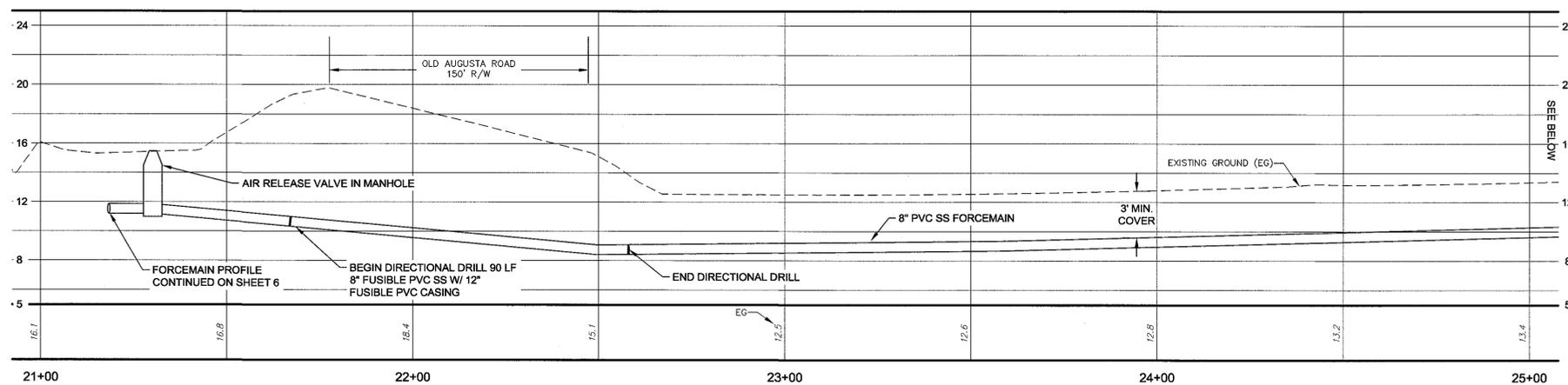
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**OF 27**

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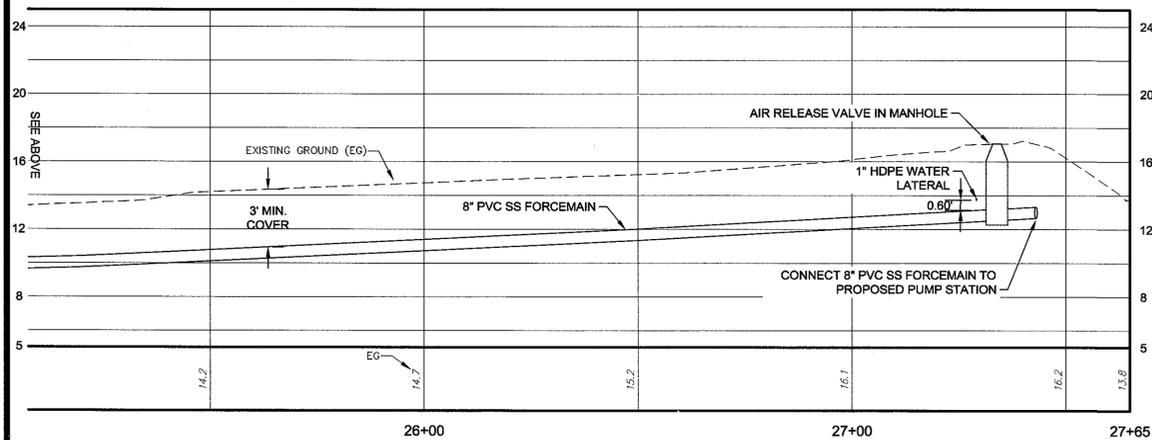
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VERT SCALE =5



FORCEMAIN  
HORZ SCALE =20  
VERT SCALE =5



FORCEMAIN  
HORZ SCALE =20  
VERT SCALE =5



NO.	REVISION DESCRIPTION	BY	DATE

GRAPHIC SCALE: 1"=20'-0"

**EMC ENGINEERING SERVICES, INC.**  
 10 CHURCH STREET CENTER SOUTH DR.  
 SAVANNAH, GEORGIA 31412  
 PHONE: (912) 232-6533  
 FAX: (912) 233-4960  
 www.emc-esi.com

CIVIL  
MARINE  
ENVIRONMENTAL  
SURVEY

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK,  
COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

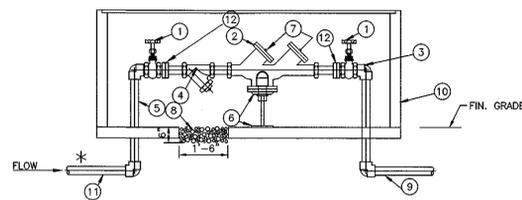
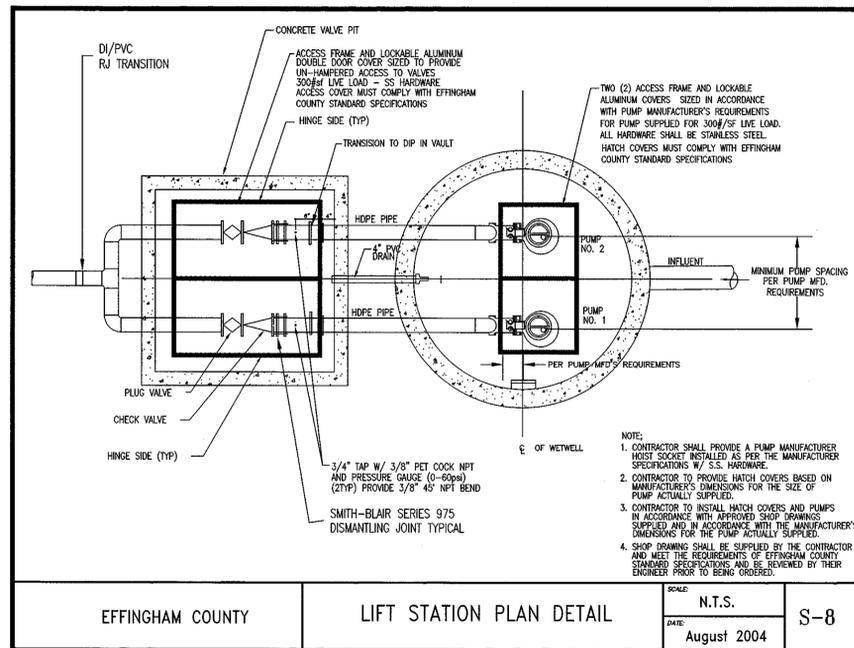
**SEWER PROFILES**

**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
 EFFINGHAM COUNTY BOARD OF COMMISSIONERS

PROJECT NO.:	16-0004
DRAWN BY:	CPR
DESIGNED BY:	ABM
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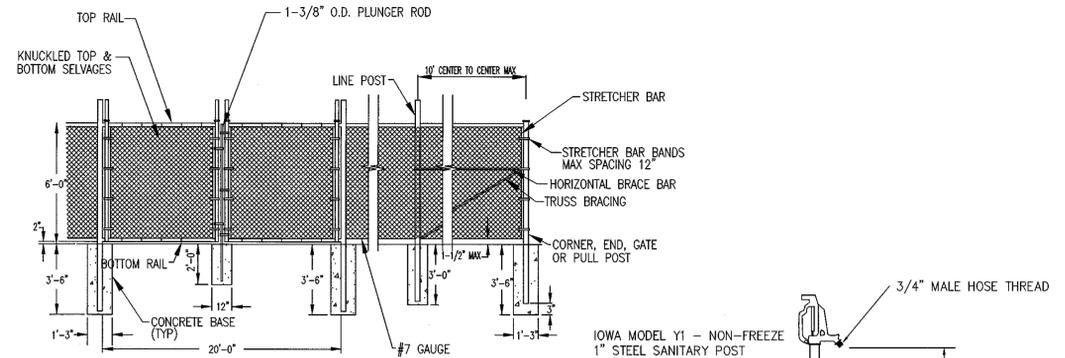
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 OF 27

C:\2016\16-0004 OLD AUGUSTA ROAD UTILITY\DWG\16-0004C\_B01.DWG 6/14/2016 11:38 AM



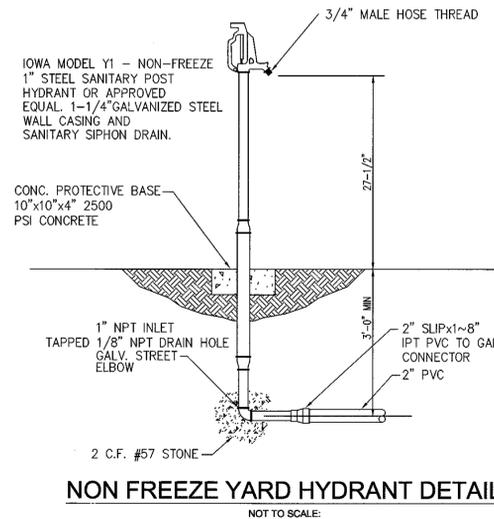
MATERIALS		
ITEM	QUAN.	DESCRIPTION
1	2	RESILIENT TYPE GATE VALVES OS&Y (FOR 2\"/>
2	1	REDUCED PRESSURE ZONE DEVICE/DOUBLE CHECK VALVE
3	4	BRASS 90° (DOMESTIC MADE)
4	1	STRAINER
5	2	BRASS NIPPLE (DOMESTIC MADE)
6		MINIMUM 12\"/>
7	2	BRASS PLUGS INSERTED IN TEST COCKS
8		6\"/>
9		POLYETHYLENE PIPE WITH COMPRESSION FITTINGS
10	*	COUNTY APPROVED ENCLOSURE WITH HATCH COVER FOR BFP
11		CUT BRASS (DOMESTIC MADE)
12		UNION

\* RECOMMENDED FOR FREEZE PROTECTION  
 BACKFLOW PREVENTER DETAIL  
 3/4\", 1\", 1-1/2\", 2\"/>  
**BACKFLOW PREVENTER**  
 NOT TO SCALE:

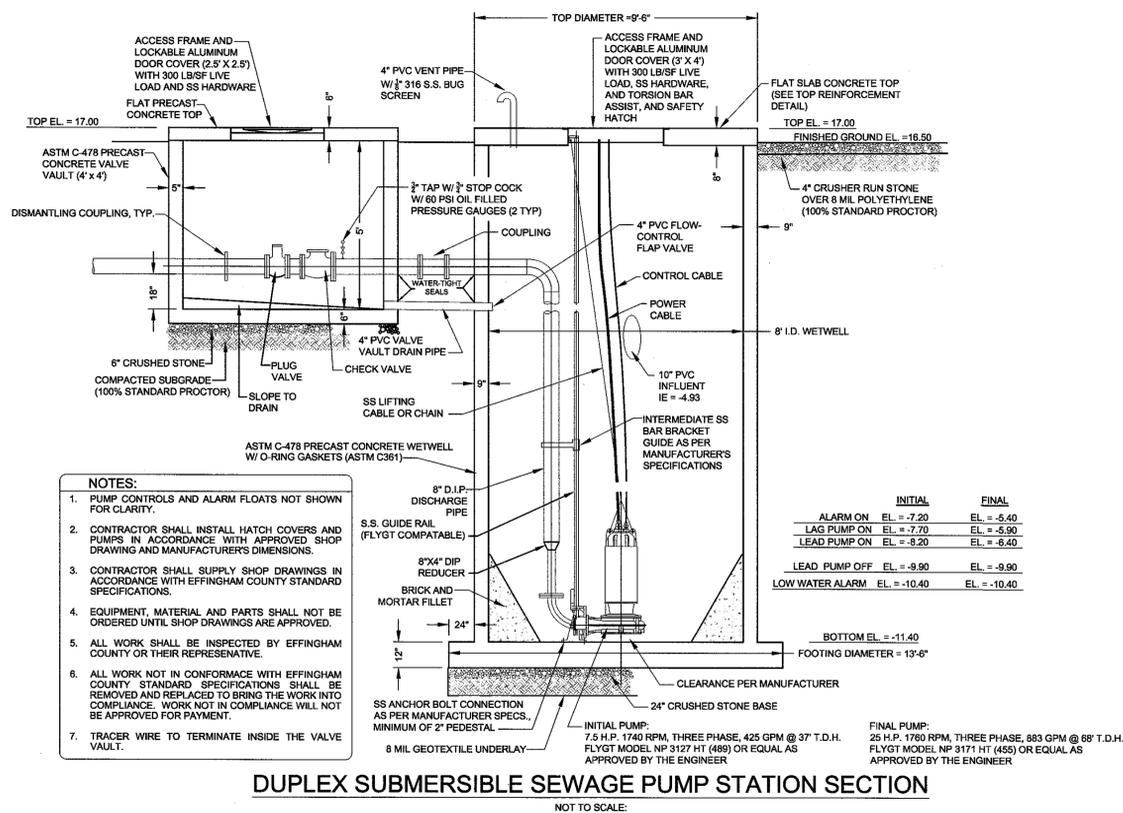


- NOTES:
- FABRIC TO BE ATTACHED TO HORIZONTAL RAILS W/ TIE WIRES AT 16\"/>
  - FABRIC TO BE ATTACHED TO TENSION WIRES W/ HOG RINGS AT 24\"/>
  - FABRIC TO BE ATTACHED TO LINE POSTS W/ SELF-LOCKING BANDS AT 12\"/>
  - TOP RAIL TO TOP OF FABRIC SHALL BE 2\"/>
  - GATE POST SHALL BE 6\"/>
  - FABRIC SHALL BE 12 GAUGE.

**CHAIN LINK FENCE DETAIL**  
 NOT TO SCALE:

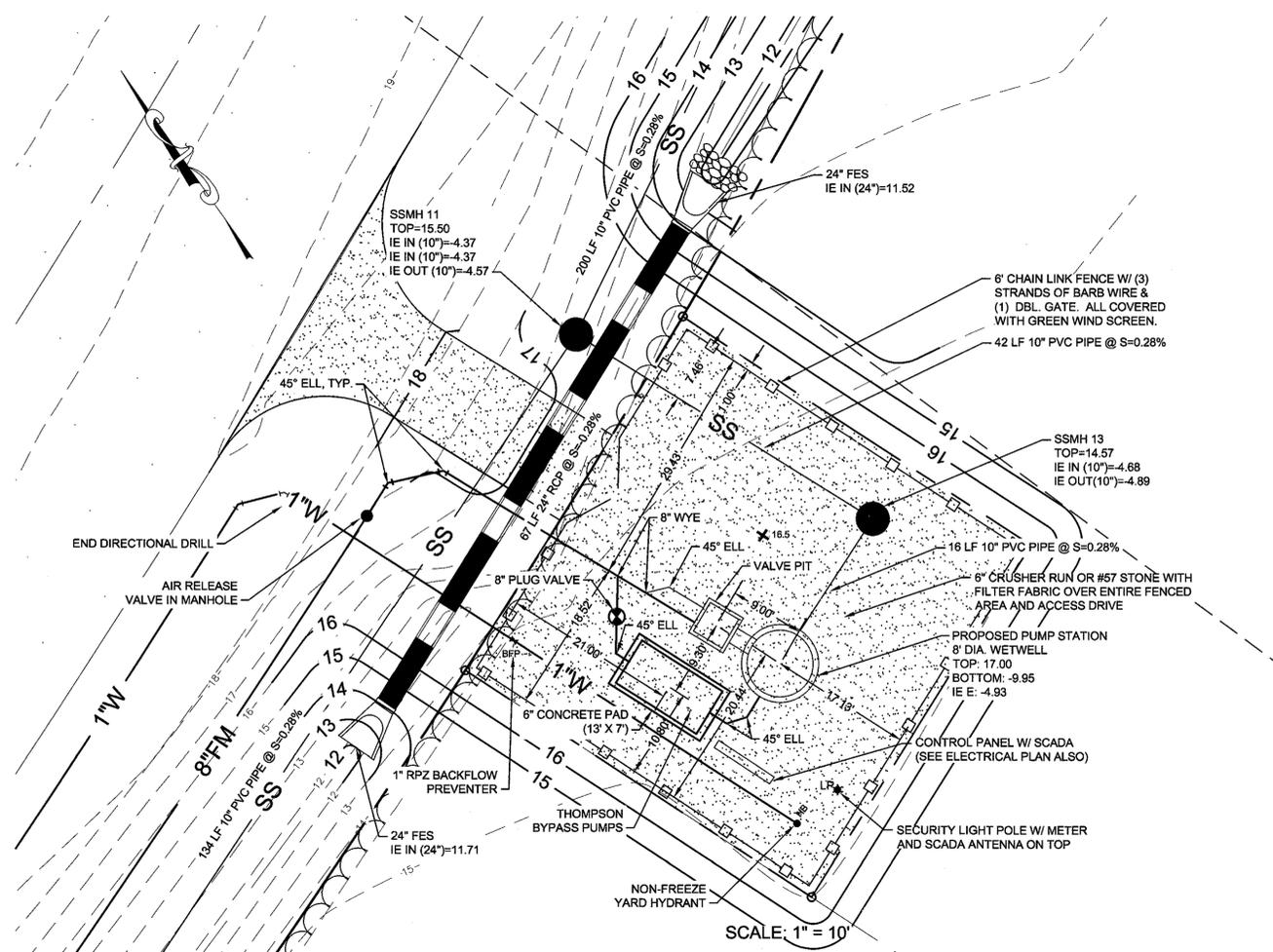


**NON FREEZE YARD HYDRANT DETAIL**  
 NOT TO SCALE:



- NOTES:
- PUMP CONTROLS AND ALARM FLOATS NOT SHOWN FOR CLARITY.
  - CONTRACTOR SHALL INSTALL HATCH COVERS AND PUMPS IN ACCORDANCE WITH APPROVED SHOP DRAWING AND MANUFACTURER'S DIMENSIONS.
  - CONTRACTOR SHALL SUPPLY SHOP DRAWINGS IN ACCORDANCE WITH EFFINGHAM COUNTY STANDARD SPECIFICATIONS.
  - EQUIPMENT, MATERIAL AND PARTS SHALL NOT BE ORDERED UNTIL SHOP DRAWINGS ARE APPROVED.
  - ALL WORK SHALL BE INSPECTED BY EFFINGHAM COUNTY OR THEIR REPRESENTATIVE.
  - ALL WORK NOT IN CONFORMANCE WITH EFFINGHAM COUNTY STANDARD SPECIFICATIONS SHALL BE REMOVED AND REPLACED TO BRING THE WORK INTO COMPLIANCE. WORK NOT IN COMPLIANCE WILL NOT BE APPROVED FOR PAYMENT.
  - TRACER WIRE TO TERMINATE INSIDE THE VALVE VAULT.

**DUPLIX SUBMERSIBLE SEWAGE PUMP STATION SECTION**  
 NOT TO SCALE:



SCALE: 1" = 10'

REVISION DESCRIPTION BY DATE

NO.	REVISION DESCRIPTION	BY	DATE

10' 5' 0' 10'  
 GRAPHIC SCALE: 1"=10'-0"

**EMC ENGINEERING SERVICES, INC.**  
 10 GATHAM CENTER SOUTH DR.  
 SUITE 100 (31445) 811  
 SAVANNAH, GEORGIA 31412  
 PHONE: (912) 233-6533  
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CIVIL MARINE ENVIRONMENTAL SURVEY  
 ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

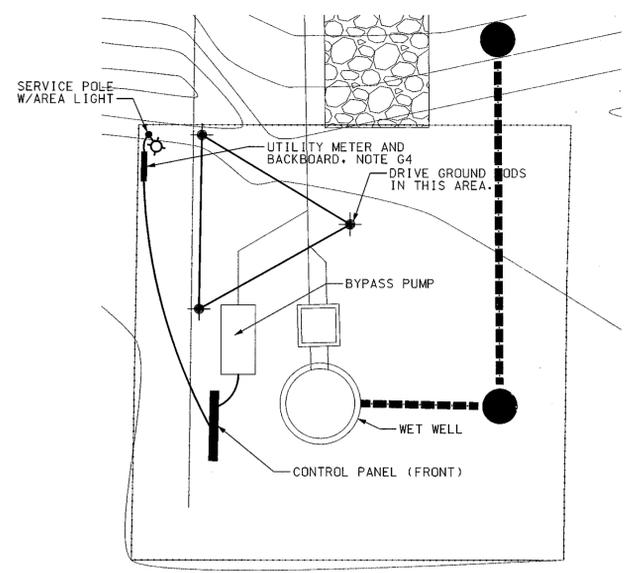
**EMC**

**PUMP STATION PLAN**

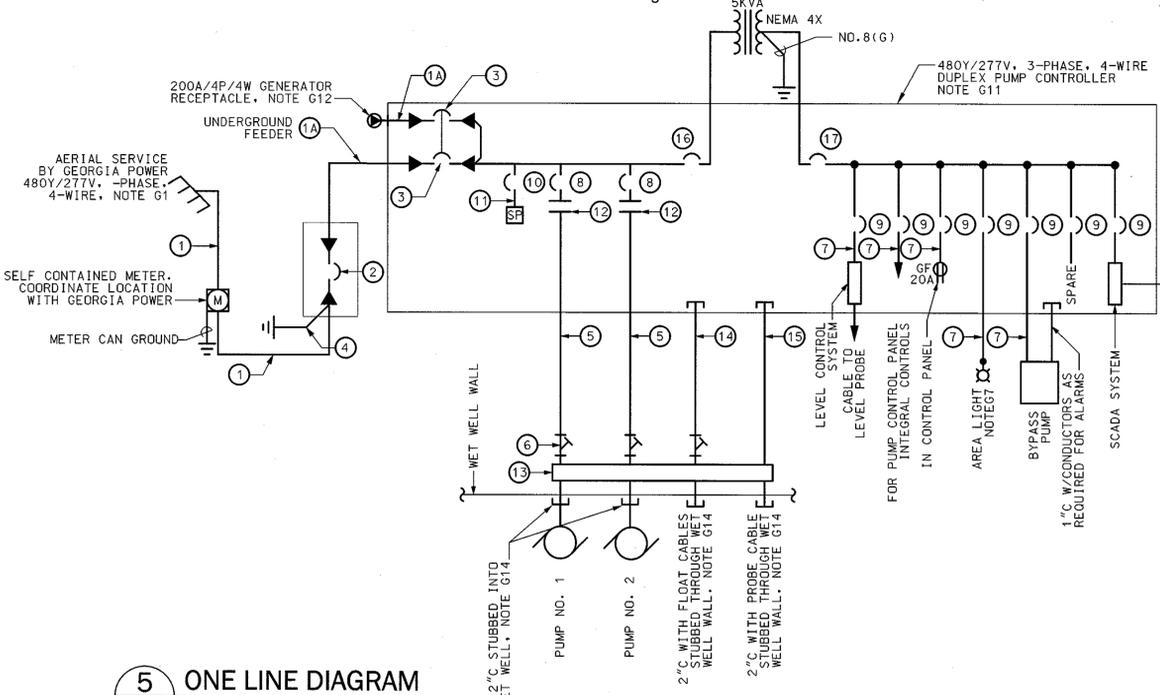
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
 9TH G.M. DISTRICT  
 EFFINGHAM COUNTY, GEORGIA  
 Prepared for:  
 EFFINGHAM COUNTY BOARD OF COMMISSIONERS

PROJECT NO.: 16-0004  
 DRAWN BY: CPR  
 DESIGNED BY: ABM  
 SURVEYED BY: EMC  
 SURVEY DATE: MARCH 2016  
 CHECKED BY: ABM  
 SCALE: 1"=10'  
 DATE: MAY 2016

**SHEET 21**  
 OF 27



**1 SITE PLAN**  
E1 SCALE: 1" = 10'

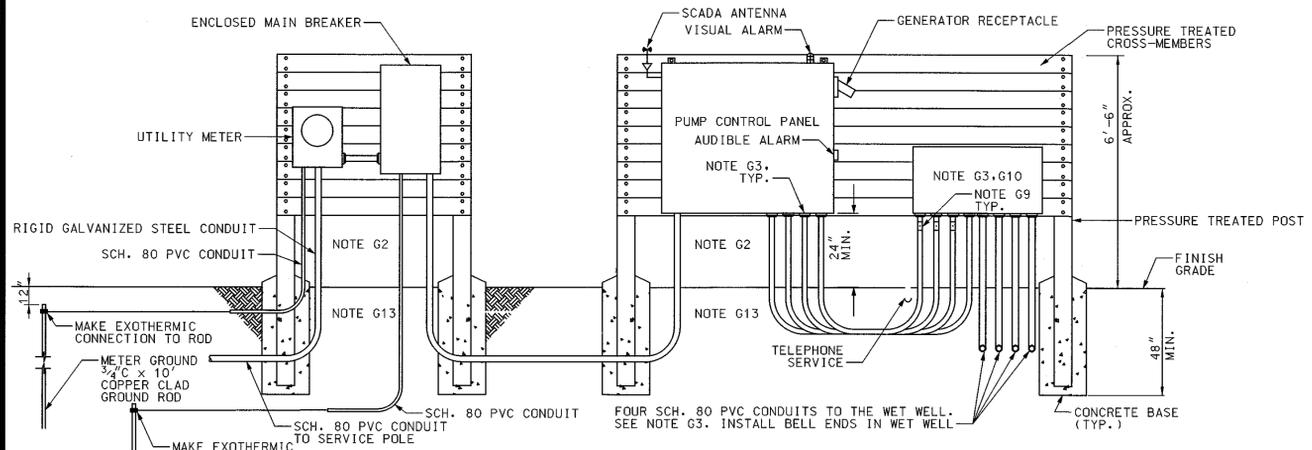


**5 ONE LINE DIAGRAM**  
E1 NOT TO SCALE

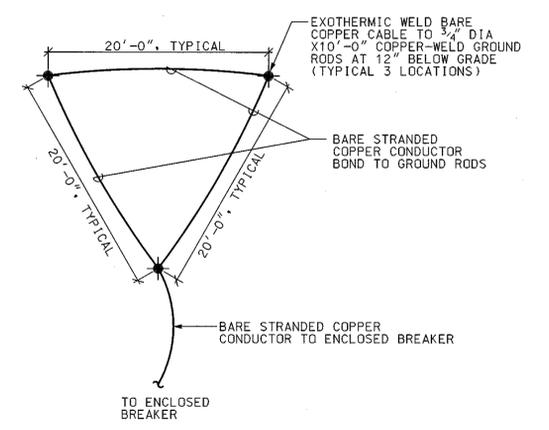
DUPLIX PUMP STATION ONE LINE SCHEDULE	
ITEM#	PUMPS 460V 3PH: 7.5HP 9.9FLA / 25HP 31FLA
1	2" C W/4NO. 1
1A	2" C W/4NO. 1, 1NO. 8(G)
2	125A/3P MAIN CIRCUIT BREAKER W/ SERVICE LABEL, 18 000 MIN. A.I.C. @ 480V, LOCKABLE
3	125A/3P EMERGENCY CIRCUIT BREAKER W/ MECHANICAL WALKING BEAM INTERLOCK 18 000 MIN. A.I.C. @ 480V
4	3/4" C. W/ 1 NO. 6(G)
5	2" C W/3NO. 8, 1NO. 10(G), 4NO. 12(CNTLS)
6	SEAL-OFF FITTING, C-H TYPE EYS, NOTE G9
7	3/4" C. W/2NO. 12, 1NO. 12(G)
8	25A/3P MOTOR CIRCUIT BREAKER 18 000 MIN. A.I.C. @ 480V, NOTE G15
9	20A/1P CIRCUIT BREAKER, 10 000 MIN. A.I.C. @ 120V
10	40A/3P CIRCUIT BREAKER 14 000 MIN. A.I.C. @ 480V.
11	3NO. 8, 1NO. 8(G), CONDUCTORS SHALL NOT EXCEED 18" IN LENGTH
12	REDUCED VOLTAGE SOLID STATE STARTER FOR 25HP 460V 3PH 31FLA MOTOR, NOTE G15
13	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH POWER BLOCKS AND TERMINAL STRIPS AS REQUIRED SEE NOTE G10
14	2" C W/4NO. 12, 1NO. 12(G)
15	2" C W/LEVEL PROBE CABLE
16	15A/2P CIRCUIT BREAKER 14 000 MIN. A.I.C. @ 480V.
17	30A/2P CIRCUIT BREAKER 10 000 MIN. A.I.C. @ 240V.

- LEGEND**
- EQUIPMENT AS NOTED
  - MOTOR CIRCUIT BREAKER AND REDUCED VOLTAGE SOLID STATE STARTER
  - DUPLEX RECEPTACLE, NEMA 5-20R
  - WP WEATHERPROOF
  - GROUND TO GROUND ROD SYSTEM
  - GROUND FAULT CIRCUIT INTERRUPTER PROTECTION
  - AIC INTERRUPTING CAPACITY IN AMPS
  - CONDUIT SYSTEM CONCEALED BELOW GRADE
  - PUMP MOTOR, HORSEPOWER INDICATED
  - EMERGENCY GENERATOR RECEPTACLE, NOTE G12
  - SEAL OFF FITTING, NOTE G9
  - AREA LIGHT: LUMARK NAVION AREA LIGHT, NOTE G7, G11
  - SURGE SUPPRESSION UNIT - APT MODEL TE-04-XDS-15-4X-A
  - GROUND ROD LOCATION

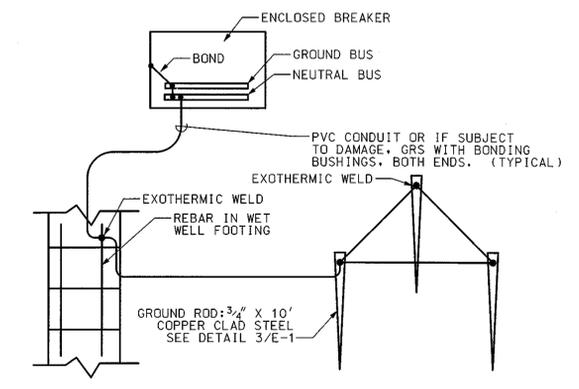
- GENERAL NOTES**
61. FIELD COORDINATE THE LOCATION OF THE SERVICE POLE WITH GEORGIA POWER CONTACT JOSHUA GWINN, DISTRIBUTION ENGINEER, (912)306-2631, AND OSMAN BHOLAT, AREA SALES EXECUTIVE, (912)306-2326.
  62. UNLESS NOTED OTHERWISE, ALL CONDUITS INSTALLED EXPOSED TO ATMOSPHERE SHALL BE RIGID GALVANIZED STEEL CONDUIT, ALL CONDUITS INSTALLED BELOW GRADE SHALL BE SCHEDULE 80 PVC. ALL ELBOWS BELOW GRADE TO BE RIGID GALVANIZED STEEL.
  63. SEAL BOTH ENDS OF EACH CONDUIT ENTERING THE CONTROL CABINET FROM THE WET WELL WITH ELECTRICAL DUCT SEAL. SEAL ALL CONDUITS ENTERING CONTROL PANEL FROM BELOW GRADE WITH DUCT SEAL.
  64. THE EXACT LOCATION OF THE METER AND SERVICE SHALL BE COORDINATED IN THE FIELD WITH THE UTILITY COMPANY AND WITH OTHER WORK ON THE PROJECT SITE.
  65. CIRCUIT BREAKER AND SWITCH OPERATING HANDLES SHALL BE A MAXIMUM OF 66" ABOVE FINISHED GRADE. LOCATE DUPLEX PUMP CONTROL PANEL AND ENCLOSED CIRCUIT BREAKER WHERE INDICATED.
  66. POSITION ELECTRICAL EQUIPMENT SO THAT ALARM LIGHT CAN BE SEEN FROM THE NEAREST ROAD. EXACT ORIENTATION AND LOCATION OF ELECTRICAL EQUIPMENT STRUCTURE SHALL BE DETERMINED IN FIELD FOR BEST VIEW OF ALARM LIGHT & ACCESS TO ELECTRICAL EQUIPMENT.
  67. MOUNT AREA LIGHT TO THE TOP OF THE SERVICE POLE. REFER TO DETAIL 6/E1, THIS SHEET.
  68. ALL ATTACHMENT HARDWARE SHALL BE HOT DIPPED GALVANIZED.
  69. PROVIDE TYPE EYS TYPE CONDUIT SEAL-OFF. SEAL WITH SEALING COMPOUND. MAKE POWER & FLOAT CONNECTIONS IN THE JUNCTION BOX. LEVEL PROBE SHALL EXTEND TO CONTROL PANEL WITHOUT SPLICES OR INTERMEDIATE TERMINATIONS.
  610. 18" H X 48" W X 8" D MINIMUM NEMA 4X S.S. JUNCTION BOX W/ GASKETED SCREW COVER AND ALUMINUM BACKPLATE.
  611. PROVIDE A LUMARK NAVION SERIES AREA LIGHT WITH A WOOD POLE BRACKET: CAT. NO. NAV-AE-02-E-UNV-14W-10K-PER-AP WITH OA/RA1014 AND WP218 BRACKET.
  612. THE CONTRACTOR SHALL FIELD COORDINATE THE EXACT CONFIGURATION OF THE GENERATOR RECEPTACLE WITH THE OWNER'S GENERATOR. THE SUBMITTAL SHALL INDICATE THE CONTRACTOR HAS COORDINATED THE RECEPTACLE PRIOR TO SUBMITTING SHOP DRAWINGS.
  613. ALL METALLIC CONDUITS BELOW GRADE AND/OR ENCASED IN CONCRETE SHALL BE PROTECTED AGAINST CORROSION. APPLY TWO COATS OF 3M SCOTCHRAP PIPE PRIMER, ALLOWING EACH COAT TO DRY BETWEEN APPLICATIONS. THEN APPLY TWO OVERLAPPING LAYERS OF 3M SCOTCHRAP 51 TAPE (20 MILS). CORROSION PROTECTION SHALL EXTEND FROM 6" ABOVE GRADE TO THE END OF THE METALLIC CONDUIT.
  614. 2" SCH. 80 PVC STUBBED INTO THE WET WELL. PROVIDE STAINLESS STEEL SUPPORT HOOK AND NON-CONDUCTIVE, CLOSED MESH, ARAMID FIBER CABLE SUPPORT GRIPS FOR ALL CABLES. GRIPS FOR FLOAT AND PROBE CABLES SHALL BE SINGLE WEAVE, SINGLE EYE TYPE; GRIPS FOR PUMP CABLES SHALL BE DOUBLE WEAVE DOUBLE EYE TYPE. COORDINATE GRIP SIZE WITH CABLES SUPPORTED. ATTACH GRIP WITH TWO HEAVY-DUTY PLASTIC ZIP TIES. PROVIDE PRODUCTS OF SLINGCO AMERICA, TYRONE, GA. NO SUBSTITUTIONS PERMITTED. CONTACT CAROLE SYDES, SALES ACCOUNT MANAGER, (888)685-9478.
  615. THE CONTROL PANEL SHALL BE PROVIDED WITH MOTOR CIRCUIT BREAKERS SIZED FOR THE INITIAL PUMPS (7.5 HP) AND SHALL ALLOW SPACE FOR FUTURE/BUILD-OUT CONDITION PUMPS (25 HP). THE REDUCED VOLTAGE SOLID STATE STARTER SHALL BE SIZED AND PROVIDED FOR THE BUILD-OUT CONDITION PUMPS.
  616. THE SCADA SYSTEM FOR THE STATION SHALL BE PROVIDED AS AN INTEGRAL PART OF THE CONTROL PANEL. SCADA EQUIPMENT SHALL BE PROVIDED AND TESTED BY SILVER LAKE AUTOMATION, RINGON, GA. CONTACT ROB LANHAM, GENERAL MANAGER, (912)826-9700. COORDINATE WITH SILVER LAKE AUTOMATION FOR PANEL CONFIGURATION AND ANNUNCIATED ALARM POINTS. SCADA ANTENNA SHALL BE MOUNTED ON THE EQUIPMENT BACKBOARD.



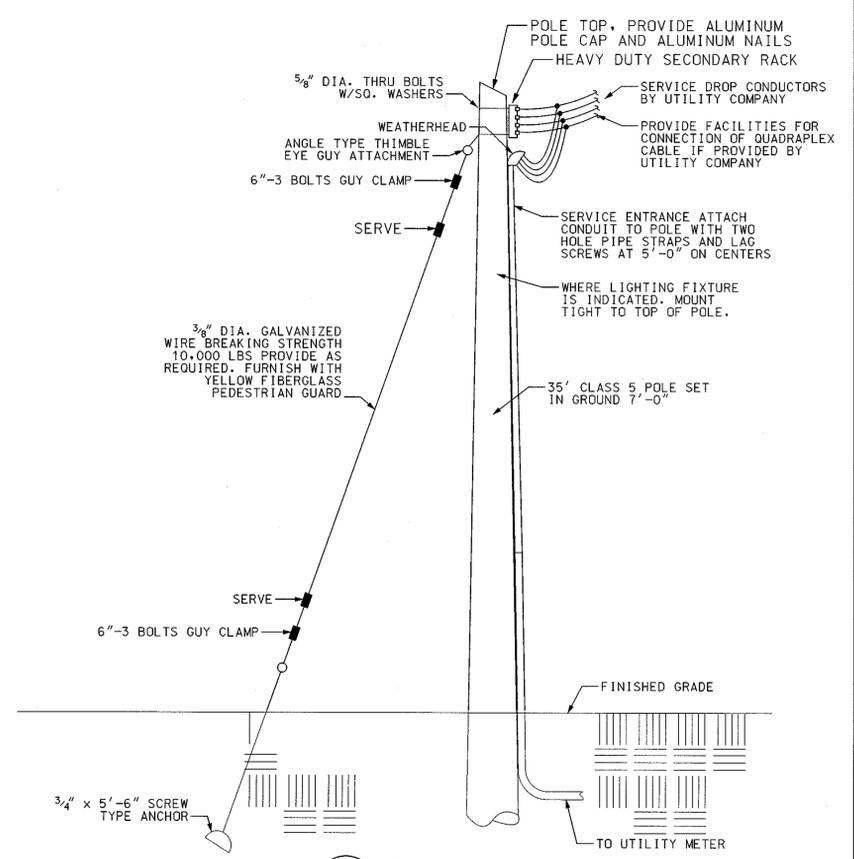
**2 EQUIPMENT BACKBOARD DETAIL**  
E1 NOT TO SCALE



**3 SECONDARY ELECTRICAL GROUNDING**  
E1 NOT TO SCALE



**4 PUMP STATION SERVICE GROUNDING**  
E1 NOT TO SCALE



**6 SERVICE POLE DETAIL**  
E1 NOT TO SCALE

EMC ENGINEERING SERVICES, INC.  
10 CHATHAM CENTER SOUTH DR.  
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ALBANY, ATLANTA, AUGUSTA, BRUNSWICK, COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

**PUMP STATION ELECTRICAL PLAN**  
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
9TH G.M. DISTRICT  
EFFINGHAM COUNTY, GEORGIA  
Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

PROJECT NO.:	16-0004
DRAWN BY:	CC
DESIGNED BY:	CC
SURVEYED BY:	N/A
SURVEY DATE:	N/A
CHECKED BY:	PM
SCALE:	1"=10'
DATE:	MAY 2016

**SHEET E1**  
OF 27

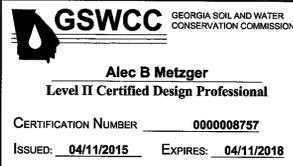
GENERAL ES&P CONTROL NOTES

PROJECT NAME: OLD AUGUSTA ROAD UTILITY EXTENSION ADDRESS: OLD AUGUSTA ROAD CITY/COUNTY: EFFINGHAM COUNTY DATE ON PLANS: MAY 2016

- 1. STANDARDS AND SPECIFICATIONS: ALL DESIGNS WILL CONFORM TO AND ALL WORK WILL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE PUBLICATION ENTITLED, "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA, 6TH EDITION".

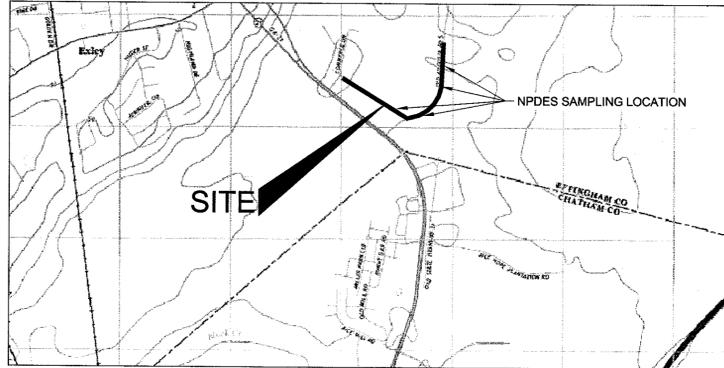
CHECKLIST ES&P NOTES

- 1. THE APPLICABLE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN CHECKLIST ESTABLISHED BY THE COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED.



Signature: [Handwritten Signature]

- 3. THE NAME AND PHONE NUMBER OF THE 24-HOUR LOCAL CONTACT RESPONSIBLE FOR EROSION, SEDIMENTATION AND POLLUTION CONTROLS. 24 HOUR CONTACT INFORMATION OF CIVIL SITE WORKER: EMC ENGINEERING SERVICES, INC. ALEC B. METZGER, PE 10 CHATHAM CENTER SOUTH, SUITE 100 SAVANNAH, GEORGIA 31412 (912) 232-6533



- 10. IDENTIFY THE PROJECT RECEIVING WATERS AND DESCRIBE ALL SENSITIVE ADJACENT AREAS INCLUDING STREAMS, LAKES RESIDENTIAL AREAS WETLANDS, ETC. WHICH MAY BE AFFECTED. RECEIVING WATERS: INITIAL RECEIVING WATER(S) IS THE SAVANNAH RIVER, WHICH SUPPORTS WARM WATER FISHERIES.

- 11. DESIGN PROFESSIONAL'S CERTIFICATION STATEMENT AND SIGNATURE THAT THE SITE WAS VISITED PRIOR TO DEVELOPMENT OF THE ES&P PLAN AS STATED ON PAGE 15 OF THE PERMIT. I CERTIFY, UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED Agent, UNDER MY SUPERVISION.

- 24. DESCRIPTION OF THE MEASURES THAT WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER THAT WILL OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED. POST CONSTRUCTION POLLUTANT CONTROL MEASURES: EROSION SEDIMENTATION AND POLLUTION CONTROL MEASURES INSTALLED DURING THE CONSTRUCTION PROCESS, SHALL SERVE TO CONTROL POLLUTANTS ENTERING INTO THE STORM WATER SYSTEM AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED.

Table with columns for ACTIVITY, MONTH 01, MONTH 02, MONTH 03, MONTH 04, MONTH 05, MONTH 06. Rows include CONSTRUCTION EXIT, SEDIMENT BARRIER, MAINTENANCE OF ES&P BMPs, CLEARING AND GRUBBING, DEMO, UTILITY CONSTRUCTION, DUST CONTROL MEASURES, DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING), DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION).

Table with columns: NO, REVISION DESCRIPTION, BY, DATE. Contains revision history entries.



EMC ENGINEERING SERVICES, INC. CIVIL ENGINEERING MARINE ENVIRONMENTAL SURVEY. TO CHATHAM CENTER SOUTH, DR. SUITE 100 CHATHAM CENTER SOUTH, SAVANNAH, GEORGIA 31412

EROSION, SEDIMENTATION & POLLUTION CONTROL NOTES OLD AUGUSTA ROAD UTILITY EXTENSION 9TH G.M. DISTRICT EFFINGHAM COUNTY, GA Prepared for: EFFINGHAM COUNTY BOARD OF COMMISSIONERS

PROJECT NO.: 16-0004 DRAWN BY: CPR DESIGNED BY: ABM SURVEYED BY: ABM SURVEY DATE: DATE: MAY 2016

C:\2016\16-0004-OLD AUGUSTA ROAD UTILITY.DWG 16-0004-CO.DWG 5/26/2016 12:22 PM

PG 24 YES 30. PROVIDE COMPLETE REQUIREMENTS OF SAMPLING FREQUENCY AND REPORTING OF SAMPLING RESULTS.

**SAMPLING FREQUENCY:**

THE PRIMARY PERMITTEE MUST SAMPLE IN ACCORDANCE WITH THE PLAN AT LEAST ONCE FOR EACH RAINFALL EVENT DESCRIBED BELOW FOR A QUALIFYING EVENT, THE PERMITTEE SHALL SAMPLE AT THE BEGINNING OF ANY STORM WATER DISCHARGE TO A MONITORED RECEIVING WATER AND/OR FROM A MONITORED OUTFALL LOCATION WITHIN FORTY-FIVE (45) MINUTES OR AS SOON AS POSSIBLE. HOWEVER, WHEN AN AUTOMATIC SAMPLING SYSTEM IS DEFINED IN THE GENERAL PERMIT, THIS PERMITTEE SHALL USE THE PERMITTEE'S CONTROL. THE PERMITTEE SHALL TAKE SAMPLES AS SOON AS POSSIBLE, BUT IN NO CASE MORE THAN TWELVE (12) HOURS AFTER THE BEGINNING OF THE STORM WATER DISCHARGE.

SAMPLING BY THE PERMITTEE SHALL OCCUR FOR THE FOLLOWING QUALIFYING EVENTS:

- A. FOR EACH AREA OF THE SITE THAT DISCHARGES INTO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THE GENERAL PERMIT AFTER ALL CLEARING AND GRUBBING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO COMPLETION OF MASS GRADING OPERATIONS, IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE REPRESENTATIVE SAMPLING LOCATION;
- B. IN ADDITION TO (A) ABOVE, FOR EACH AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL, THE FIRST RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH WITH A STORM WATER DISCHARGE THAT OCCURS DURING NORMAL BUSINESS HOURS AS DEFINED IN THE GENERAL PERMIT EITHER 90 DAYS AFTER THE FIRST SAMPLING EVENT OR AFTER ALL MASS GRADING OPERATIONS HAVE BEEN COMPLETED, BUT PRIOR TO SUBMITTAL OF A NOTICE OF TERMINATION (NOT), IN THE DRAINAGE AREA OF THE LOCATION SELECTED AS THE SAMPLING LOCATION, WHICHEVER COMES FIRST;
- C. AT THE TIME OF SAMPLING PERFORMED PURSUANT TO (A) AND (B) ABOVE, IF BMPs IN ANY AREA OF THE SITE THAT DISCHARGES TO A RECEIVING WATER OR FROM AN OUTFALL ARE NOT PROPERLY DESIGNED, INSTALLED AND MAINTAINED, CORRECTIVE ACTION SHALL BE DEFINED AND IMPLEMENTED WITHIN TWO (2) BUSINESS DAYS, AND TURBIDITY SAMPLES SHALL BE TAKEN FROM DISCHARGES FROM THAT AREA OF THE SITE FOR EACH SUBSEQUENT RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH DURING NORMAL BUSINESS HOURS\* UNTIL THE SELECTED TURBIDITY STANDARD IS ATTAINED, OR UNTIL POST-STORM EVEN INSPECTIONS DETERMINE THAT BMPs ARE PROPERLY DESIGNED, INSTALLED AND MAINTAINED;
- D. WHERE SAMPLING PURSUANT TO (A), (B) OR (C) ABOVE IS REQUIRED BUT NOT POSSIBLE (OR NOT REQUIRED BECAUSE THERE WAS NO DISCHARGE), THE PERMITTEE, IN ACCORDANCE WITH PART IV.D.4.A.(6), MUST INCLUDE A WRITTEN JUSTIFICATION IN THE INSPECTION REPORT OF WHY SAMPLING WAS NOT PERFORMED. PROVIDING THIS JUSTIFICATION DOES NOT RELIEVE THE PERMITTEE OF ANY SUBSEQUENT SAMPLING OBLIGATIONS (A), (B) OR (C) ABOVE; AND
- E. EXISTING CONSTRUCTION ACTIVITIES, I.E., THOSE THAT ARE OCCURRING ON OR BEFORE THE EFFECTIVE DATE OF THIS PERMIT, THAT HAVE MET THE SAMPLING REQUIRED BY (A) ABOVE SHALL SAMPLE IN ACCORDANCE WITH (B). THOSE EXISTING CONSTRUCTION ACTIVITIES THAT HAVE MET THE SAMPLING REQUIRED BY (B) ABOVE SHALL NOT BE REQUIRED TO CONDUCT ADDITIONAL SAMPLING OTHER THAN AS REQUIRED BY (C) ABOVE.

\*NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.

**REPORTING:**

- 1. THE APPLICABLE PERMITTEES ARE REQUIRED TO SUBMIT THE SAMPLING RESULTS TO THE EPD AT THE ADDRESS SHOWN IN PART II.C. OF THE GENERAL PERMIT BY THE FIFTEENTH DAY OF THE MONTH FOLLOWING THE REPORTING PERIOD. REPORTING PERIODS ARE MONTHS DURING WHICH SAMPLES ARE TAKEN IN ACCORDANCE WITH THE GENERAL PERMIT. SAMPLING RESULTS SHALL BE IN A CLEARLY LEGIBLE FORMAT. UPON WRITTEN NOTIFICATION, EPD MAY REQUIRE THE APPLICABLE PERMITTEE TO SUBMIT THE SAMPLING RESULTS ON A MORE FREQUENT BASIS. SAMPLING AND ANALYSIS OF ANY STORM WATER DISCHARGE(S) OR THE RECEIVING WATER(S) BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED IN A SIMILAR MANNER TO THE EPD. THE SAMPLING REPORTS MUST BE SIGNED IN ACCORDANCE WITH PART V.G.2. OF THE GENERAL PERMIT. SAMPLING REPORTS MUST BE SUBMITTED TO EPD UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI. OF THE GENERAL PERMIT.
- 2. ALL SAMPLING REPORTS SHALL INCLUDE THE FOLLOWING INFORMATION:
  - A. THE RAINFALL AMOUNT, DATE, EXACT PLACE AND TIME OF SAMPLING OR MEASUREMENTS;
  - B. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE SAMPLING AND MEASUREMENTS;
  - C. THE DATE(S) ANALYSES WERE PERFORMED;
  - D. THE TIME(S) ANALYSES WERE INITIATED;
  - E. THE NAME(S) OF THE CERTIFIED PERSONNEL WHO PERFORMED THE ANALYSES;
  - F. REFERENCES AND WRITTEN PROCEDURES, WHEN AVAILABLE, FOR THE ANALYTICAL TECHNIQUES OR METHODS USED;
  - G. THE RESULTS OF EACH ANALYSIS, INCLUDING THE BENCH SHEETS, INSTRUMENT READOUTS, COMPUTER DISKS OR TAPES, ETC., USED TO DETERMINE THESE RESULTS;
  - H. RESULTS WHICH EXCEED 1000 NTU SHALL BE REPORTED AS "EXCEEDS 1000 NTU"; AND
  - I. CERTIFICATION STATEMENT THAT SAMPLING WAS CONDUCTED AS PER THE PLAN.
- 3. ALL WRITTEN CORRESPONDENCE REQUIRED BY THIS PERMIT SHALL BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL (OR SIMILAR SERVICE) TO THE APPROPRIATE DISTRICT OFFICE OF THE EPD ACCORDING TO THE SCHEDULE IN APPENDIX A OF THE GENERAL PERMIT. THE PERMITTEE SHALL RETAIN A COPY OF THE PROOF OF SUBMITTAL AT THE CONSTRUCTION SITE OR THE PROOF OF SUBMITTAL SHALL BE READILY AVAILABLE AT THE DESIGNATED LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI OF THE GENERAL PERMIT. IF AN ELECTRONIC SUBMITTAL IS PROVIDED BY EPD THEN THE WRITTEN CORRESPONDENCE MAY BE SUBMITTED ELECTRONICALLY; IF REQUIRED, A PAPER COPY MUST ALSO BE SUBMITTED BY RETURN RECEIPT CERTIFIED MAIL OR SIMILAR SERVICE.

PG 24 YES 31. PROVIDE COMPLETE DETAILS FOR RETENTION OF RECORDS AS PER PART IV.F OF THE PERMIT.

**RETENTION OF RECORDS:**

- THE PRIMARY PERMITTEE SHALL RETAIN THE FOLLOWING RECORDS AT THE CONSTRUCTION SITE OR THE RECORDS SHALL BE READILY AVAILABLE AT A DESIGNATED ALTERNATE LOCATION FROM COMMENCEMENT OF CONSTRUCTION UNTIL SUCH TIME AS A NOT IS SUBMITTED IN ACCORDANCE WITH PART VI OF THE GENERAL PERMIT:
  - A. A COPY OF ALL NOTICES OF INTENT SUBMITTED TO EPD;
  - B. A COPY OF THE EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN REQUIRED BY THE GENERAL PERMIT;
  - C. A COPY OF ALL INSPECTION REPORTS GENERATED IN ACCORDANCE WITH PART IV.D.4.A. OF THIS PERMIT;
  - D. THE DESIGN PROFESSIONAL'S REPORT OF THE RESULTS OF THE INSPECTION CONDUCTED IN ACCORDANCE WITH PART IV.A.5. OF THE GENERAL PERMIT;
  - E. A COPY OF ALL SAMPLING INFORMATION, RESULTS, AND REPORTS REQUIRED BY THE GENERAL PERMIT.
  - F. A COPY OF ALL VIOLATION SUMMARIES AND VIOLATION SUMMARY REPORTS GENERATED IN ACCORDANCE WITH PART III.D.2. OF THE GENERAL PERMIT; AND
  - G. DAILY RAINFALL INFORMATION COLLECTED IN ACCORDANCE WITH PART IV.D.4.A.(2). OF THE GENERAL PERMIT.

COPIES OF ALL NOTICES OF INTENT, NOTICES OF TERMINATION, INSPECTION REPORTS, SAMPLING REPORTS (INCLUDING ALL CALIBRATION AND MAINTENANCE RECORDS AND ALL ORIGINAL STRIP CHART RECORDINGS FOR CONTINUOUS MONITORING INSTRUMENTATION) OR OTHER REPORTS REQUESTED BY THE EPD, EROSION, SEDIMENTATION AND POLLUTION CONTROL PLANS, RECORDS OF ALL DATA USED TO COMPLETE THE NOTICE OF INTENT TO BE COVERED BY THIS PERMIT AND ALL OTHER RECORDS REQUIRED BY THIS PERMIT SHALL BE RETAINED BY THE PERMITTEE WHO EITHER PRODUCED OR USED IT FOR A PERIOD OF AT LEAST THREE YEARS FROM THE DATE THAT THE NOT IS SUBMITTED IN ACCORDANCE WITH PART VI. OF THE GENERAL PERMIT. THESE RECORDS MUST BE MAINTAINED AT THE PERMITTEE'S PRIMARY PLACE OF BUSINESS OR AT A DESIGNATED ALTERNATIVE LOCATION ONCE THE CONSTRUCTION ACTIVITY HAS CEASED AT THE PERMITTED SITE. THIS PERIOD MAY BE EXTENDED BY REQUEST OF THE EPD AT ANY TIME UPON WRITTEN NOTIFICATION TO THE PERMITTEE.

PG 24 YES 32. DESCRIPTION OF ANALYTICAL METHODS TO BE USED TO COLLECT AND ANALYZE THE SAMPLES FROM EACH LOCATION.

**SAMPLING REQUIREMENTS:**

THIS PERMIT REQUIRES THE MONITORING OF NEPHELOMETRIC TURBIDITY IN RECEIVING WATER(S) OR OUTFALLS IN ACCORDANCE WITH THIS PERMIT. THE FOLLOWING PROCEDURES CONSTITUTE EPD'S GUIDELINES FOR SAMPLING TURBIDITY.

- A. SAMPLING REQUIREMENTS SHALL INCLUDE THE FOLLOWING:

(1) A USGS TOPOGRAPHIC MAP, A TOPOGRAPHIC MAP OR A DRAWING REFERRED TO AS A TOPOGRAPHIC MAP THAT IS A SCALE EQUAL TO OR MORE DETAILED THAN A 1:24,000 MAP SHOWING THE LOCATION OF THE INFRASTRUCTURE CONSTRUCTION; (A) THE LOCATION OF ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES AS SHOWN ON A USGS TOPOGRAPHIC MAP, AND ALL OTHER PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES LOCATED DURING MANDATORY FIELD VERIFICATION, INTO WHICH THE STORM WATER IS DISCHARGED AND (B) THE RECEIVING WATER AND/OR OUTFALL SAMPLING LOCATIONS FOR EACH REPRESENTATIVE STORMWATER OUTFALL. WHEN THE PERMITTEE HAS CHOSEN TO USE A USGS TOPOGRAPHIC MAP AND THE RECEIVING WATER(S) IS NOT SHOWN ON THE USGS TOPOGRAPHIC MAP, THE LOCATION OF THE RECEIVING WATER(S) MUST BE HAND-DRAWN ON THE USGS TOPOGRAPHIC MAP FROM WHERE THE STORM WATER(S) ENTERS THE RECEIVING WATER(S) TO THE POINT WHERE THE WATER(S) COMBINES WITH THE FIRST BLUE LINE STREAM SHOWN ON THE USGS TOPOGRAPHIC MAP.

(2) A WRITTEN NARRATIVE OF SITE SPECIFIC ANALYTICAL METHODS USED TO COLLECT AND ANALYZE THE SAMPLES INCLUDING QUALITY CONTROL QUALITY ASSURANCE PROCEDURES. THIS NARRATIVE MUST INCLUDE PRECISE SAMPLING METHODOLOGY FOR EACH SAMPLING LOCATION;

(3) WHEN THE PERMITTEE HAS DETERMINED THAT SOME OR ALL OUTFALLS WILL BE SAMPLED, A RATIONALE MUST BE INCLUDED ON THE PLAN FOR THE NTU LIMIT(S) SELECTED FROM APPENDIX B. THIS RATIONALE MUST INCLUDE THE SIZE OF THE CONSTRUCTION SITE, THE CALCULATION OF THE SIZE OF THE SURFACE WATER DRAINAGE AREA, AND THE TYPE OF RECEIVING WATER(S) (I.E., TROUT STREAM OR SUPPORTING WARM WATER FISHERIES); AND

(4) ANY ADDITIONAL INFORMATION EPD DETERMINES NECESSARY TO BE PART OF THE PLAN. EPD WILL PROVIDE WRITTEN NOTICE TO THE PERMITTEE OF THE INFORMATION NECESSARY AND THE TIME LINE FOR SUBMITTAL.

- B. SAMPLE TYPE. ALL SAMPLING SHALL BE COLLECTED BY "ORAB SAMPLES" AND THE ANALYSIS OF THESE SAMPLES MUST BE CONDUCTED IN ACCORDANCE WITH METHODOLOGY AND TEST PROCEDURES ESTABLISHED BY 40 CFR PART 136 (UNLESS OTHER TEST PROCEDURES HAVE BEEN APPROVED); THE GUIDANCE DOCUMENT TITLED "NPDES STORM WATER SAMPLING GUIDANCE DOCUMENT, EPA 833-B-92-001" AND GUIDANCE DOCUMENTS THAT MAY BE PREPARED BY THE EPD.
  - (1) SAMPLE CONTAINERS SHOULD BE LABELED PRIOR TO COLLECTING THE SAMPLES.
  - (2) SAMPLES SHOULD BE WELL MIXED BEFORE TRANSFERRING TO A SECONDARY CONTAINER.
  - (3) LARGE MOUTH, WELL CLEANED AND RINSED GLASS OR PLASTIC JARS SHOULD BE USED FOR COLLECTING SAMPLES. THE JARS SHOULD BE CLEANED THOROUGHLY TO AVOID CONTAMINATION.
  - (4) MANUAL, AUTOMATIC OR RISING STAGE SAMPLING MAY BE UTILIZED. SAMPLES REQUIRED BY THIS PERMIT SHOULD BE ANALYZED IMMEDIATELY, BUT IN NO CASE LATER THAN 48 HOURS AFTER COLLECTION. HOWEVER, SAMPLES FROM AUTOMATIC SAMPLERS MUST BE COLLECTED NO LATER THAN THE NEXT BUSINESS DAY AFTER THEIR ACCUMULATION, UNLESS FLOW THROUGH AUTOMATED ANALYSIS IS UTILIZED. IF AUTOMATIC SAMPLING IS UTILIZED AND THE AUTOMATIC SAMPLER IS NOT ACTIVATED DURING THE QUALIFYING EVENT, THE PERMITTEE MUST UTILIZE MANUAL SAMPLING OR RISING STAGE SAMPLING DURING THE NEXT QUALIFYING EVENT. DILUTION OF SAMPLES IS NOT REQUIRED. SAMPLES MAY BE ANALYZED DIRECTLY WITH A PROPERLY CALIBRATED TURBIDIMETER. SAMPLES ARE NOT REQUIRED TO BE COOLED.
  - (5) SAMPLING AND ANALYSIS OF THE RECEIVING WATER(S) OR OUTFALLS BEYOND THE MINIMUM FREQUENCY STATED IN THIS PERMIT MUST BE REPORTED TO EPD AS SPECIFIED IN PART IV.E.

C. SAMPLING POINTS

(1) FOR CONSTRUCTION ACTIVITIES THE PRIMARY PERMITTEE MUST SAMPLE ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES SHOWN ON THE USGS TOPOGRAPHIC MAP AND ALL OTHER FIELD VERIFIED PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES, OR ALL OUTFALLS INTO SUCH STREAMS AND OTHER WATER BODIES, OR A COMBINATION THEREOF. HOWEVER, PROVIDED FOR IN AND IN ACCORDANCE WITH PART IV.D.6.C.(2). OF THIS PERMIT, PERENNIAL AND AUTOMATIC SAMPLING LOCATIONS FOR CONSTRUCTION PROJECT MAY SAMPLE THE REPRESENTATIVE PERENNIAL AND INTERMITTENT STREAMS, OTHER WATER BODIES OR OUTFALLS OR A COMBINATION THEREOF. SAMPLES TAKEN FOR THE PURPOSE OF COMPLIANCE WITH THIS PERMIT SHALL BE REPRESENTATIVE OF THE MONITORED ACTIVITY AND REPRESENTATIVE OF THE WATER QUALITY OF THE RECEIVING WATER(S) AND/OR THE STORM WATER OUTFALLS USING THE FOLLOWING MINIMUM GUIDELINES:

- (A) THE UPSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN IMMEDIATELY UPSTREAM OF THE CONFLUENCE OF THE FIRST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST UPSTREAM AT THE SITE) BUT DOWNSTREAM OF ANY OTHER STORM WATER DISCHARGES NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL UPSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE UPSTREAM TURBIDITY VALUE.
- (A) THE DOWNSTREAM SAMPLE FOR EACH RECEIVING WATER(S) MUST BE TAKEN DOWNSTREAM OF THE CONFLUENCE OF THE LAST STORM WATER DISCHARGE FROM THE PERMITTED ACTIVITY (I.E., THE DISCHARGE FARTHEST DOWNSTREAM AT THE SITE) BUT UPSTREAM OF ANY OTHER STORM WATER DISCHARGE NOT ASSOCIATED WITH THE PERMITTED ACTIVITY. WHERE APPROPRIATE, SEVERAL DOWNSTREAM SAMPLES FROM ACROSS THE RECEIVING WATER(S) MAY NEED TO BE TAKEN AND THE ARITHMETIC AVERAGE OF THE TURBIDITY OF THESE SAMPLES USED FOR THE DOWNSTREAM TURBIDITY VALUE.
- (B) IDEALLY THE SAMPLES SHOULD BE TAKEN FROM THE HORIZONTAL AND VERTICAL CENTER OF THE RECEIVING WATER(S) OR THE STORM WATER OUTFALL CHANNEL(S).
- (C) CARE SHOULD BE TAKEN TO AVOID STIRRING THE BOTTOM SEDIMENTS IN THE RECEIVING WATER(S) OR IN THE OUTFALL STORM WATER CHANNEL.
- (D) THE SAMPLING CONTAINER SHOULD BE HELD SO THAT THE OPENING FACES UPSTREAM.
- (E) THE SAMPLES SHOULD BE KEPT FREE FROM FLOATING DEBRIS.
- (F) PERMITTEES DO NOT HAVE TO SAMPLE SHEETFLOW THAT FLOWS ONTO UNDISTURBED NATURAL AREAS OR AREAS STABILIZED BY THE PROJECT. FOR PURPOSES OF THIS SECTION, STABILIZED MEAN, FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES, 100% OF THE SOIL SURFACE IS UNIFORMLY COVERED IN PERMANENT VEGETATION WITH A DENSITY OF 70% OR GREATER, OR LANDSCAPED ACCORDING TO THE PLAN (UNIFORMLY COVERED WITH LANDSCAPING MATERIALS IN PLANNED LANDSCAPED AREAS), OR EQUIVALENT PERMANENT STABILIZATION MEASURES AS DEFINED IN THE MANUAL (EXCLUDING A CROP OF ANNUAL VEGETATION AND A SEEDING OF TARGET CROP PERENNIALS APPROPRIATE FOR THE REGION). FOR INFRASTRUCTURE CONSTRUCTION PROJECTS ON LAND USED FOR AGRICULTURAL OR SILVICULTURAL PURPOSES, FINAL STABILIZATION MAY BE ACCOMPLISHED BY STABILIZING THE DISTURBED LAND FOR ITS AGRICULTURAL OR SILVICULTURAL USE.
- (G) ALL SAMPLING PURSUANT TO THIS PERMIT MUST BE DONE IN SUCH A WAY INCLUDING GENERALLY ACCEPTED SAMPLING METHODS, LOCATIONS, TIMING, AND FREQUENCY) AS TO ACCURATELY REFLECT WHETHER STORM WATER RUNOFF FROM THE CONSTRUCTION SITE IS IN COMPLIANCE WITH THE STANDARD SET FORTH IN PARTS III.D.3 OR III.D.4, WHICHEVER IS APPLICABLE.

\*NOTE THAT THE PERMITTEE MAY CHOOSE TO MEET THE REQUIREMENTS OF (A) AND (B) ABOVE BY COLLECTING TURBIDITY SAMPLES FROM ANY RAIN EVENT THAT REACHES OR EXCEEDS 0.5 INCH AND ALLOWS FOR SAMPLING AT ANY TIME OF THE DAY OR WEEK.

PG 24 YES 33. APPENDIX B RATIONALE FOR NTU VALUES AT ALL OUTFALL SAMPLING POINTS WHERE APPLICABLE.\*

**SAMPLE ANALYSIS:**

STORM WATER IS TO BE SAMPLED FOR NEPHELOMETRIC TURBIDITY UNITS (NTU) OF THE OUTFALL LOCATION. A DISCHARGE OF STORM WATER RUNOFF FROM DISTURBED AREAS WHERE BEST MANAGEMENT PRACTICES HAVE NOT BEEN PROPERLY DESIGNED, INSTALLED, AND MAINTAINED SHALL CONSTITUTE A SEPARATE VIOLATION FOR EACH DAY ON WHICH SUCH CONDITION RESULTS IN THE TURBIDITY OF THE DISCHARGE EXCEEDING 75, THE VALUE THAT WAS SELECTED FROM APPENDIX B IN GENERAL PERMIT. THE NTU IS BASED UPON THE DISTURBED ACREAGE OF 4.72 ACRES FOR THE PROJECT SITE, THE SURFACE WATER DRAINAGE AREA OF 0.10-SQUARE MILES FOR THE DRAINAGE BASIN, AND THE RECEIVING WATER THE SAVANNAH RIVER, WHICH SUPPORTS WARM WATER FISHERIES.

PLAN YES 34. DELINEATE ALL SAMPLING LOCATIONS, PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES INTO WHICH STORM WATER IS DISCHARGED.\*

PLAN YES 35. A DESCRIPTION OF APPROPRIATE CONTROLS AND MEASURES THAT WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE INCLUDING: (1) INITIAL SEDIMENT STORAGE REQUIREMENTS AND PERIMETER CONTROL BMPs, (2) INTERMEDIATE GRADING AND DRAINAGE BMPs, AND (3) FINAL BMPs. FOR CONSTRUCTION SITES WHERE THERE WILL BE NO MASS GRADING AND THE INITIAL PERIMETER CONTROL BMPs, INTERMEDIATE GRADING AND DRAINAGE BMPs, AND FINAL BMPs ARE THE SAME, THE PLAN MAY COMBINE ALL OF THE BMPs INTO A SINGLE PHASE.\*

PLAN YES 36. GRAPHIC SCALE AND NORTH ARROW.

PLAN YES 37. EXISTING AND PROPOSED CONTOUR LINES WITH CONTOUR LINES DRAWN AT AN INTERVAL IN ACCORDANCE WITH THE FOLLOWING:

Existing Contours	USGS 1":2000 Topographical Sheets
Proposed Contours	1":400' Contour Profile

N/A NO 38. USE OF ALTERNATIVE BMPs WHOSE PERFORMANCE HAS BEEN DOCUMENTED TO BE EQUIVALENT TO OR SUPERIOR TO CONVENTIONAL BMPs AS CERTIFIED BY A DESIGN PROFESSIONAL (UNLESS DISAPPROVED BY EPD OR THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION), PLEASE REFER TO THE ALTERNATIVE BMP GUIDANCE DOCUMENT FOUND AT WWW.GASWCC.ORG.

PLEASE REFER TO THE ALTERNATIVE BMP GUIDANCE DOCUMENT FOUND AT WWW.GASWCC.ORG.

N/A NO 39. USE OF ALTERNATIVE BMP FOR APPLICATION TO THE EQUIVALENT BMP LIST. PLEASE REFER TO APPENDIX A-2 OF THE MANUAL FOR EROSION & SEDIMENT CONTROL IN GEORGIA 2016 EDITION.

PG 46 YES 40. DELINEATION OF THE APPLICABLE 25-FOOT OR 50-FOOT UNDISTURBED BUFFERS ADJACENT TO STATE WATERS AND ANY ADDITIONAL BUFFERS REQUIRED BY THE LOCAL ISSUING AUTHORITY. CLEARLY NOTE AND DELINEATE ALL AREAS OF IMPACT.

41. DELINEATION OF ON-SITE WETLANDS AND ALL STATE WATERS LOCATED ON AND WITHIN 200 FEET OF THE PROJECT SITE.

42. DELINEATION AND ACREAGE OF CONTRIBUTING DRAINAGE BASINS ON THE PROJECT SITE.

43. DELINEATE ON-SITE DRAINAGE AND OFF-SITE WATERSHEDS USING USGS 1":2000 TOPOGRAPHICAL SHEETS.

44. AN ESTIMATE OF THE RUNOFF COEFFICIENT OR PEAK DISCHARGE FLOW OF THE SITE PRIOR TO AND AFTER CONSTRUCTION ACTIVITIES ARE COMPLETED.

N/A NO 45. STORM DRAIN PIPE AND WEIR VELOCITIES WITH APPROPRIATE OUTLET PROTECTION TO ACCOMMODATE DISCHARGES WITHOUT EROSION. IDENTIFY/DELINEATE ALL STORM WATER DISCHARGE POINTS.

PLAN YES 46. SOIL SERIES FOR THE PROJECT SITE AND THEIR DELINEATION.

PLAN YES 47. THE LIMITS OF DISTURBANCE FOR EACH PHASE OF CONSTRUCTION.

PG 24 YES 48. PROVIDE A MINIMUM OF 67 CUBIC YARDS OF SEDIMENT STORAGE PER ACRE DRAINED USING A TEMPORARY SEDIMENT BASIN, RETROFITTED DETENTION POND, AND/OR EXCAVATED INLET SEDIMENT TRAPS FOR EACH COMMON DRAINAGE LOCATION. SEDIMENT STORAGE VOLUME MUST BE IN PLACE PRIOR TO AND DURING ALL LAND DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION OF THE SITE HAS BEEN ACHIEVED. A WRITTEN JUSTIFICATION EXPLAINING THE DECISION TO USE EQUIVALENT CONTROLS WHEN A SEDIMENT BASIN IS NOT ATTAINABLE MUST BE INCLUDED IN THE PLAN FOR EACH COMMON DRAINAGE LOCATION IN WHICH A SEDIMENT BASIN IS NOT PROVIDED. A WRITTEN JUSTIFICATION AS TO WHY 67 CUBIC YARDS OF STORAGE IS NOT ATTAINABLE MUST ALSO BE GIVEN. WORKSHEETS FROM THE MANUAL MUST BE INCLUDED FOR STRUCTURAL BMPs AND ALL CALCULATIONS USED BY THE DESIGN PROFESSIONAL TO OBTAIN THE REQUIRED SEDIMENT STORAGE WHEN USING EQUIVALENT CONTROLS. WHEN DISCHARGING FROM SEDIMENT BASINS AND IMPOUNDMENTS, PERMITTEES ARE REQUIRED TO UTILIZE OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE, UNLESS INFEASIBLE. IF OUTLET STRUCTURES THAT WITHDRAW WATER FROM THE SURFACE ARE NOT FEASIBLE, A WRITTEN JUSTIFICATION EXPLAINING THIS DECISION MUST BE INCLUDED IN THE PLAN.

**SEDIMENT STORAGE:**

BASIN IS 4.72-ACRES. THE REQUIRED SEDIMENT STORAGE VOLUME FOR THIS ACREAGE IS 67 CY/AC \* 4.72-ACRES = 317 CY. THE SEDIMENT WILL BE TRAPPED BY PERIMETER SILT FENCE AND ANY EXCESS WILL BE CAUGHT USING HAY BALE CHECK DAMS. REQUIRED STORAGE < AVAILABLE STORAGE

**HAY BALE CHECK DAM STORAGE CALCULATION**

- 1. DISTURBED AREA = 4.72 AC
- 2. REQUIRED SEDIMENT STORAGE = 67 CY/AC \* DISTURBED AREA  
REQUIRED SEDIMENT STORAGE = 67 CY/AC \* 4.72 AC  
REQUIRED SEDIMENT STORAGE = 317 CY = 8,559 CF
- 3. SEDIMENT TRAPPED BY SILT FENCE = 913 CY  
REMAINDER OF SEDIMENT TO BE STORED = 317 - 913 = 0 CY

PLAN YES 49. LOCATION OF BEST MANAGEMENT PRACTICES THAT ARE CONSISTENT WITH, AND NO LESS STRINGENT THAN, THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. USE UNIFORM CODING SYMBOLS FROM THE MANUAL, CHAPTER 6, WITH LEGEND.

**VEGETATIVE MEASURES AND STRUCTURAL PRACTICES**

CODE	PRACTICE	DETAIL	MAP SYMBOL	DESCRIPTION
Sd1	SEDIMENT BARRIER			A BARRIER TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. IT MAY BE SANDBAGS, BALER OF STRAW OR HAY, BRUSH, LOGS AND POLES, GRAVEL, OR A SEDIMENT FENCE.
Cd-H	HAY BALE CHECK DAM			A SMALL TEMPORARY BARRIER FORMED BY HAY BALES CONSTRUCTED ACROSS A SWALE, DRAINAGE DITCH OR AREA OF CONCENTRATED FLOW.
St	STORM DRAIN OUTFALL PROTECTION			A PAVED OR SHORT SECTION OF RIPRAP CHANNEL AT THE OUTLET OF A STORM DRAIN SYSTEM PREVENTING EROSION FROM THE CONCENTRATED RUNOFF.
Du	DUST CONTROL ON DISTURBED AREAS			CONTROLLING SURFACE AND AIR MOVEMENT OF DUST ON CONSTRUCTION SITE, ROADWAYS AND SIMILAR SITES.
Ds1	DISTURBED AREA STABILIZATION (WITH MULCHING ONLY)			ESTABLISHING TEMPORARY PROTECTION FOR DISTURBED AREAS WHERE SEEDINGS MAY NOT HAVE A SUITABLE GROWING SEASON TO PRODUCE AN EROSION RETARDING COVER.
Ds2	DISTURBED AREA STABILIZATION (WITH TEMPORARY SEEDING)			ESTABLISHING A TEMPORARY VEGETATIVE COVER WITH FAST GROWING SEEDINGS ON DISTURBED AREAS.
Ds3	DISTURBED AREA STABILIZATION (WITH PERMANENT VEGETATION)			ESTABLISHING PERMANENT VEGETATIVE COVER SUCH AS TREES, SHRUBS, VINES, GRASSES, SOD, OR LEGUMES ON DISTURBED AREAS.

PG 25-27 YES 50. PROVIDE DETAILED DRAWINGS FOR ALL STRUCTURAL PRACTICES. SPECIFICATIONS MUST, AT A MINIMUM, MEET THE GUIDELINES SET FORTH IN THE MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA.

PG 24 YES 51. PROVIDE VEGETATIVE PLAN, NOTING ALL TEMPORARY AND PERMANENT VEGETATIVE PRACTICES. INCLUDE SPECIES, PLANTING DATES AND SEEDING, FERTILIZER, LIME AND MULCHING RATES. VEGETATIVE PLAN SHOULD BE SITE SPECIFIC FOR APPROPRIATE TIME OF YEAR THAT SEEDING WILL TAKE PLACE AND FOR THE APPROPRIATE GEOGRAPHIC REGION OF GEORGIA.

**TEMPORARY AND PERMANENT SEEDING SCHEDULE**

MONTH	TEMPORARY COVER	RATE PER ACRE		PERMANENT COVER	RATE PER ACRE	
		SEEDED ALONE	ADDED TO MIX		SEEDED ALONE	ADDED TO MIX
JANUARY	RYEGRASS	40 LBS	-	UNHULLED BERMUDA	10 LBS	6 LBS
	RYE	3 BU	0.5 BU	SERLCEA LESPEDEZA (1)	75 LBS	-
FEBRUARY	ANNUAL LESPEDEZA	40 LBS	10 LBS	UNHULLED BERMUDA	10 LBS	6 LBS
	RYEGRASS	40 LBS	-	SERLCEA LESPEDEZA (1)	75 LBS	-
MAY	WEeping LOVEGRASS	4 LBS	2 LBS	PENSACOLA BAHIA	60 LBS	30 LBS
	ANNUAL LESPEDEZA	40 LBS	10 LBS	HULLED BERMUDA	10 LBS	6 LBS
				SERLCEA LESPEDEZA (2)	60 LBS	-
MAY	WEeping LOVEGRASS	4 LBS	2 LBS	PENSACOLA BAHIA	60 LBS	30 LBS
	SUDON GRASS	60 LBS	-	WEeping LOVEGRASS	6 LBS	6 LBS
	BROWN TOP MILLET	40 LBS	10 LBS	HULLED BERMUDA	10 LBS	6 LBS
MAY	WEeping LOVEGRASS	4 LBS	2 LBS	PENSACOLA BAHIA	60 LBS	30 LBS
	SUDON GRASS	60 LBS	-	WEeping LOVEGRASS	6 LBS	6 LBS
	BROWN TOP MILLET	40 LBS	10 LBS	HULLED BERMUDA	10 LBS	6 LBS
	PEARL MILLET	50 LBS	-	SERLCEA LESPEDEZA (2)	60 LBS	-
JUNE	PEARL MILLET	50 LBS	-	PENSACOLA BAHIA	60 LBS	30 LBS
	SUDON GRASS	60 LBS	-	HULLED BERMUDA	10 LBS	6 LBS
	BROWN TOP MILLET	40 LBS	10 LBS			
JULY	PEARL MILLET	50 LBS	-	PENSACOLA BAHIA	60 LBS	30 LBS
	SUDON GRASS	60 LBS	-			
	BROWN TOP MILLET	40 LBS	10 LBS			
AUGUST	PEARL MILLET	50 LBS	-	PENSACOLA BAHIA	60 LBS	30 LBS
	RYE	3 BU	0.5 BU			
SEPTEMBER	RYEGRASS	40 LBS	-	SERLCEA LESPEDEZA (1)	75 LBS	-
	OATS	4 BU	1 BU			
	WHEAT	3 BU	0.5 BU			
OCTOBER	WHEAT	3 BU	0.5 BU	SERLCEA LESPEDEZA (1)	75 LBS	-
	RYEGRASS	40 LBS	-			
	RYE	3 BU	0.5 BU			
	BARLEY	3 BU	0.5 BU			
NOVEMBER	OATS	4 BU	1 BU			
	SAME AS OCTOBER			UNHULLED BERMUDA	10 LBS	6 LBS
DECEMBER	SAME AS OCTOBER			UNHULLED BERMUDA	10 LBS	6 LBS

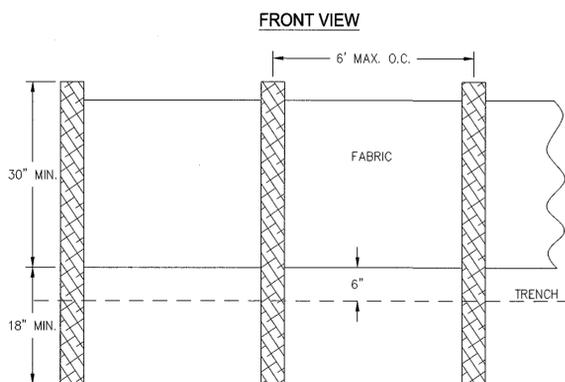
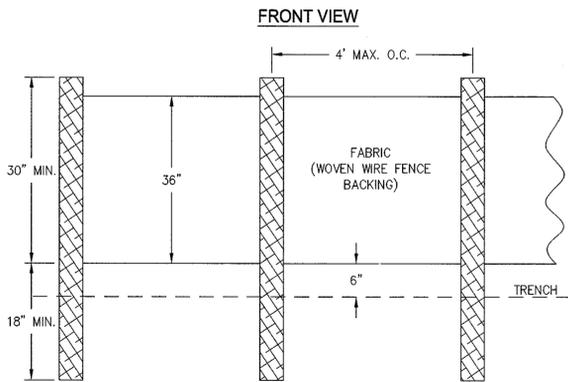
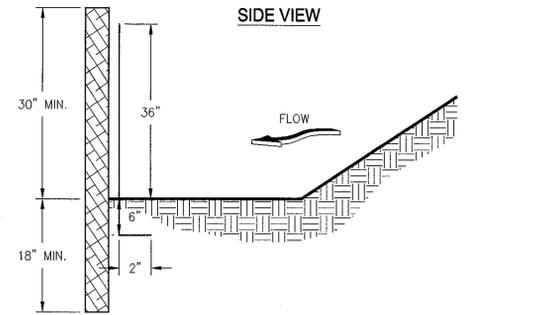
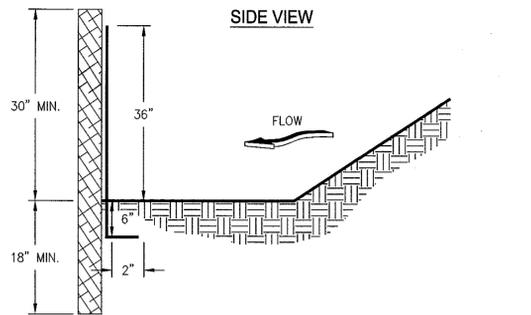
- NOTES:
- FERTILIZING - APPLY 6-12-12 FERTILIZER AT THE RATE OF 35 POUNDS PER 1,000 SQUARE FEET, RAKING LIGHTLY INTO THE SOIL.
  - APPLY AGRICULTURAL LIME AT A RATE OF ONE TON PER ACRE. THE AGRICULTURAL LIME SHALL MEET THE SPECIFICATIONS OF THE GEORGIA DEPARTMENT OF AGRICULTURE.
  - DRY STAW SHALL BE APPLIED AT THE RATE OF 2 TONS PER ACRE AND DRY HAY SHALL BE APPLIED AT A RATE OF 2.5 TONS PER ACRE.
  - WATER IMMEDIATELY AFTER MULCHING.

**SILT FENCE STORAGE CALCULATION**

- 1. DISTURBED AREA = 4.72 AC
  - 2. REQUIRED SEDIMENT STORAGE = 67 CY/AC \* DISTURBED AREA  
REQUIRED SEDIMENT STORAGE = 67 CY/AC \* 4.72 AC  
REQUIRED SEDIMENT STORAGE = 317 CY = 8,559 CF
  - 3. ASSUME SEDIMENT DEPTH OF 9" AGAINST SILT FENCE TO DETERMINE REQUIRED SURFACE AREA
  - 4. S<sub>min</sub> = REQUIRED SEDIMENT STORAGE/ SEDIMENT DEPTH  
S<sub>min</sub> = 8,559 CF/ 0.75 FT  
S<sub>min</sub> = 11,412 SF
  - 5. DETERMINE IF ADEQUATE SEDIMENT STORAGE AREA ALONG SILT FENCE IS POSSIBLE.  
LENGTH OF SILT FENCE (L) = 10,958'  
DEPTH OF SEDIMENT (D) = 0.75'  
WIDTH OF SEDIMENT STORAGE AREA (W) = 3.0'
- L x D x W = 24,655 CF
- 913 CY OF SEDIMENT STORAGE IS AVAILABLE IN THE SILT FENCE.

NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC** GEORGIA SOIL AND WATER CONSERVATION COMMISSION  
 Alec B Metzger



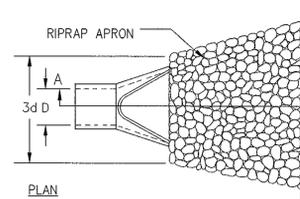
- NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
  2. HEIGHT (\*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

- NOTES:
1. USE STEEL OR WOOD POSTS OR AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
  2. HEIGHT (\*) IS TO BE SHOWN ON THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.

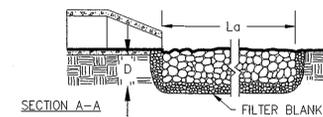
**SILT FENCE - TYPE SENSITIVE**  
SCALE: NTS

**SILT FENCE - TYPE NON-SENSITIVE**  
SCALE: NTS

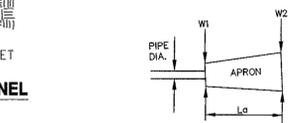
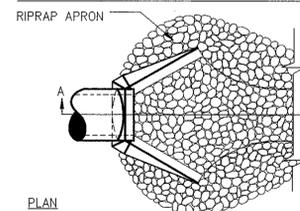
**PIPE OUTLET TO FLAT AREA -- NO WELL DEFINED CHANNEL**



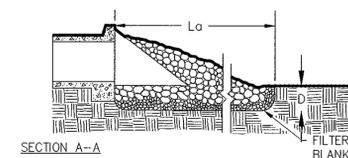
- NOTES:
1.  $L_a$  IS THE LENGTH OF THE RIPRAP APRON.
  2.  $D = 1.5$  TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6".
  3. IN A WELL-DEFINED CHANNEL, EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK (WHICHEVER IS LESS).
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



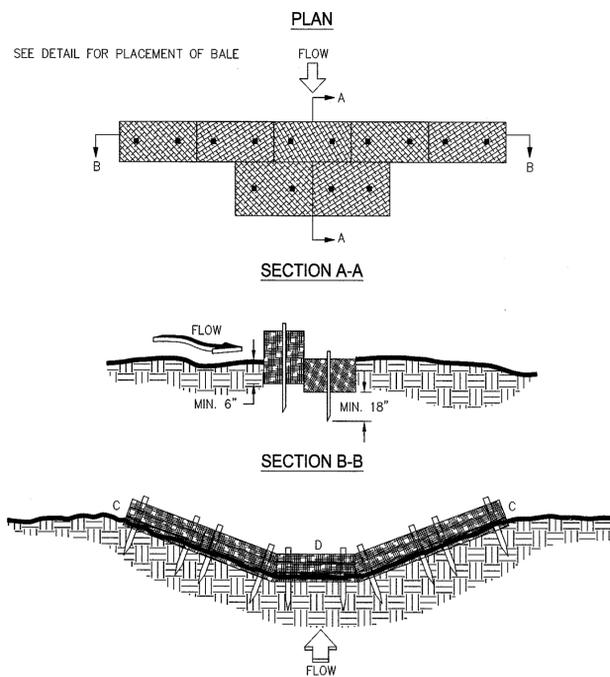
**PIPE OUTLET TO WELL DEFINED CHANNEL**



FLOW CHARACTERISTICS				OUTLET PROTECTION DIMENSIONS			
PIPE DIA.	FLOW RATE (CFS)	VELOCITY (FPS)	TAILWATER CONDITION	$L_a$	W1	W2	d50
24"	10.66	3.39	< 0.5 x (PIPE DIA.)	10	6.00	12.00	6"

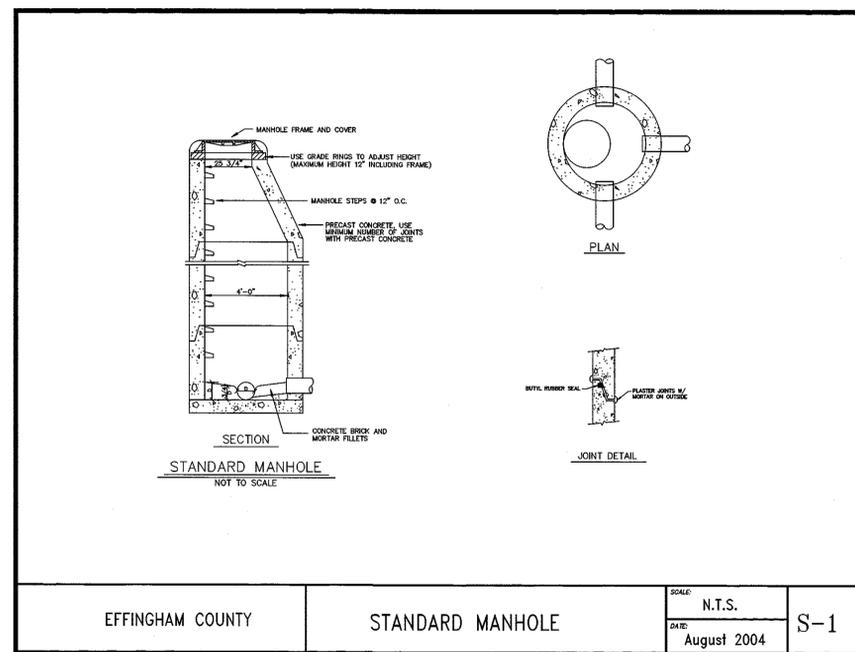


**RIP-RAP OUTLET PROTECTION**  
SCALE: NTS



- NOTES:
1. BALES SHOULD BE BOUND WITH WIRE OR NYLON STRING AND SHOULD BE PLACED IN ROWS WITH BALE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
  2. REMOVE #4 REBAR AFTER STRAW BALES ARE NO LONGER IN PLACE.
  3. POINT C OF SECTION B-B SHOULD ALWAYS BE HIGHER THAN POINT D.

**TYPICAL HAY BALE CHECK DAM**  
SCALE: NTS



**EFFINGHAM COUNTY STANDARD MANHOLE**  
SCALE: N.T.S.  
DATE: August 2004  
S-1

NO.	REVISION DESCRIPTION	BY	DATE

**GSWCC**  
ALEX B. METZGER  
Level II Certified Design Professional  
CERTIFICATION NUMBER: 0000083727  
ISSUED: 04/11/2015 EXPIRES: 04/11/2018



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CIVIL  
MARINE  
ENVIRONMENTAL  
SURVEY

ALBANY, ATLANTA, AUGUSTA, BRUNSWICK,  
COLUMBUS, SAVANNAH, STATESBORO & VALDOSTA

**CONSTRUCTION DETAILS**

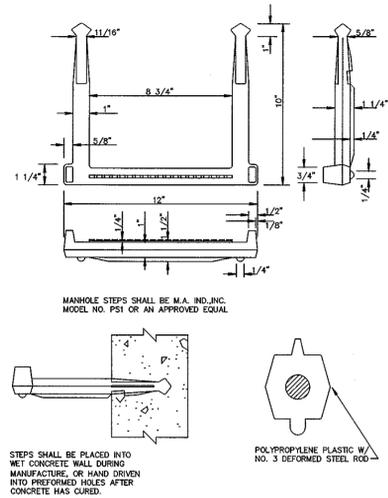
**OLD AUGUSTA ROAD UTILITY EXTENSION**  
9TH G.M. DISTRICT  
EFFINGHAM COUNTY, GA

Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

PROJECT NO.: 16-0004  
DRAWN BY: CPR  
DESIGNED BY: ABM  
SURVEYED BY:  
SURVEY DATE:  
CHECKED BY: ABM  
SCALE: N/A  
DATE: MAY 2016

**SHEET 25**  
OF 27

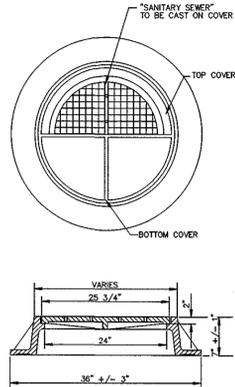
C:\2016\PA\16-0004 OLD AUGUSTA ROAD UTILITY.DWG\16-0004\_001.DWG 5/20/2016 12:22



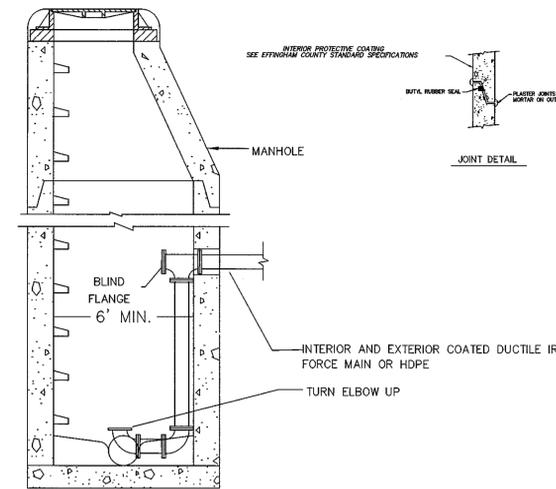
MANHOLE STEPS SHALL BE M.A. IND., INC. MODEL NO. PSI OR AN APPROVED EQUAL.

STEPS SHALL BE PLACED INTO PRECAST CONCRETE WALL DURING MANUFACTURE, OR HAND DRIVEN INTO PREFORMED HOLES AFTER CONCRETE HAS CURED.

POLYPROPYLENE PLASTIC W/ NO. 3 DEFORMED STEEL ROD



- NOTES:
1. CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM BLOWHOLES, POROSITY, HARD SPOTS, SHRINKAGE, DISTORTION OR OTHER DEFECTS. THEY SHALL BE SMOOTH AND WELL CLEANED BY SHOTBLASTING OR BY SOME OTHER APPROVED METHOD. CASTING SHALL NOT BE PAINTED.
  2. MATERIALS USED IN THE MANUFACTURE OF CASTINGS SHOULD CONFORM TO AASHTO M103/ASTM A48, CLASS 35B OR ASTM A48, CLASS 30, FOR GRAY IRON.
  3. ALL CASTINGS SHALL BE MANUFACTURED TRUE TO PATTERN. COMPONENT PARTS SHALL FIT TOGETHER IN A SATISFACTORY MANNER. ROUND FRAMES AND COVERS SHALL BE OF NON-ROCKING DESIGN, OR SHALL HAVE MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING UNDER TRAFFIC. FRAME SHALL BE SUITABLE FOR CAST IRON OR STEEL RISER RING FOR UPWARD ADJUSTMENT OF COVER. CLEAR OPENING SHALL BE 24".
  4. MANHOLE COVER SHALL BE 25-3/4" IN DIAMETER AND SHALL BE 2-INCHES THICK AT THE BEARING SURFACE.
  5. CASTINGS SHALL BE PROVIDED WITH THE INSCRIPTION "SANITARY SEWER" CAST INTO THE COVER IN LETTERING AT LEAST 2-INCHES HIGH. MANUFACTURER'S NAME, IF IT APPEARS ON THE COVER, SHALL BE CONFINED TO THE PERIPHERY.
  6. MANHOLE COVERS AND FRAMES SHALL BE USF 227, OR EQUAL AND SHALL BE THE TYPE SHOWN ON THIS DETAIL.



SECTION

EFFINGHAM COUNTY

MANHOLE STEP DETAIL

SCALE: N.T.S.  
DATE: August 2004  
S-2

EFFINGHAM COUNTY

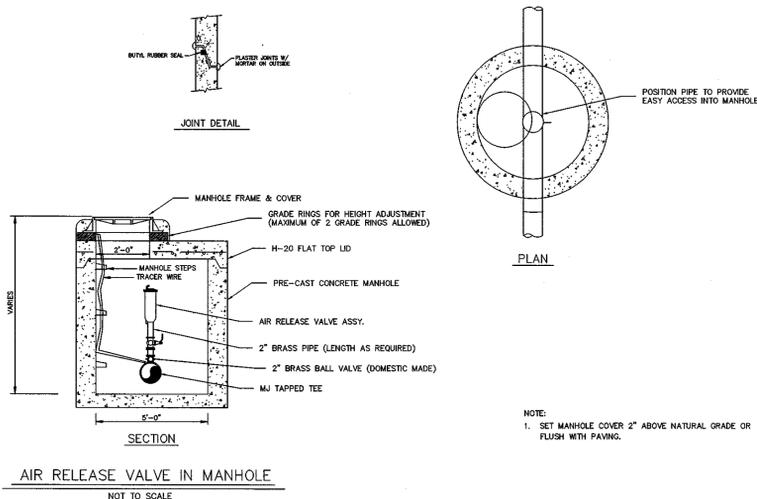
MANHOLE COVER & FRAME DETAIL

SCALE: N.T.S.  
DATE: August 2004  
S-3

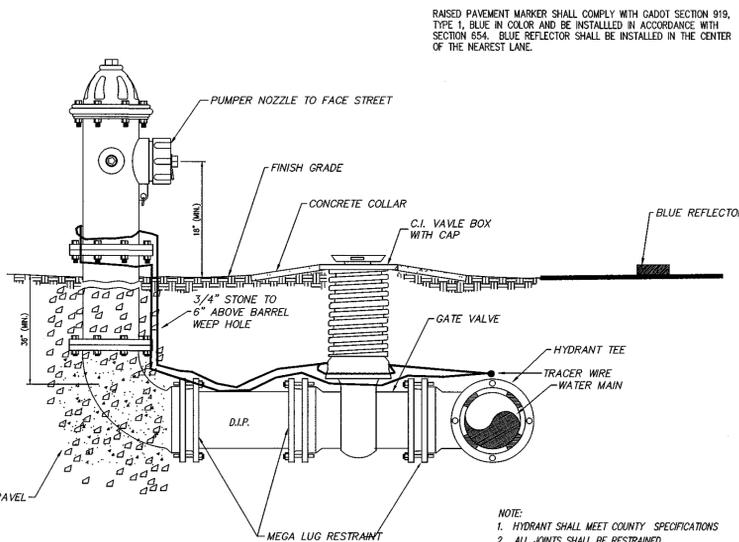
EFFINGHAM COUNTY

FORCEMAIN DROP INTO MANHOLE

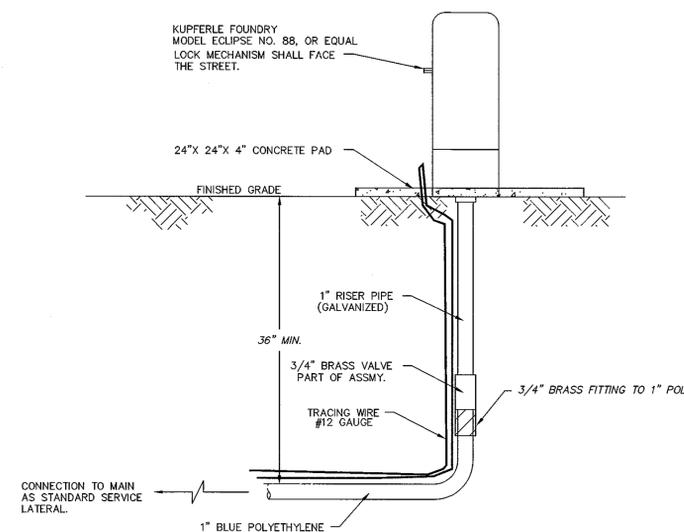
SCALE: N.T.S.  
DATE: August 2004  
S-4



- NOTE:
1. SET MANHOLE COVER 2" ABOVE NATURAL GRADE OR FLUSH WITH PAVING.



- NOTE:
1. HYDRANT SHALL MEET COUNTY SPECIFICATIONS
  2. ALL JOINTS SHALL BE RESTRAINED.



EFFINGHAM COUNTY

AIR RELEASE VALVE

SCALE: N.T.S.  
DATE: August 2004  
S-5

EFFINGHAM COUNTY

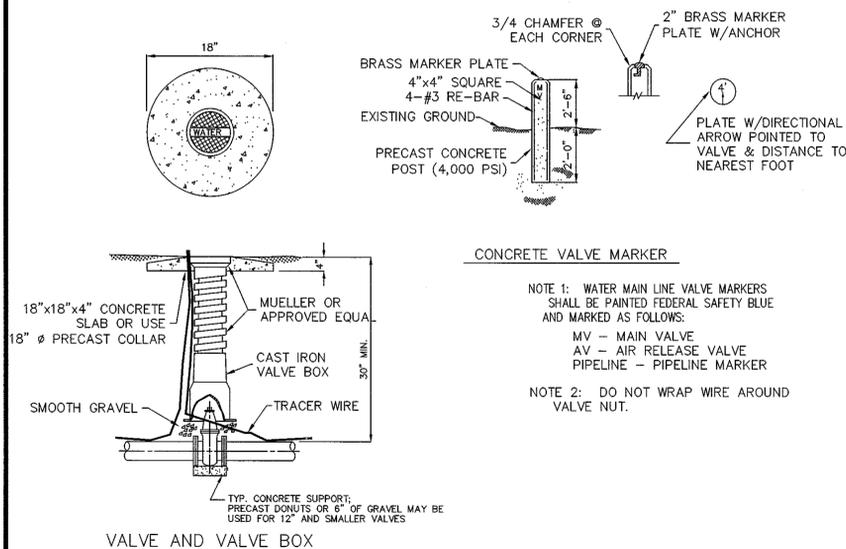
FIRE HYDRANT DETAIL

SCALE: N.T.S.  
DATE: August 2004  
W-3

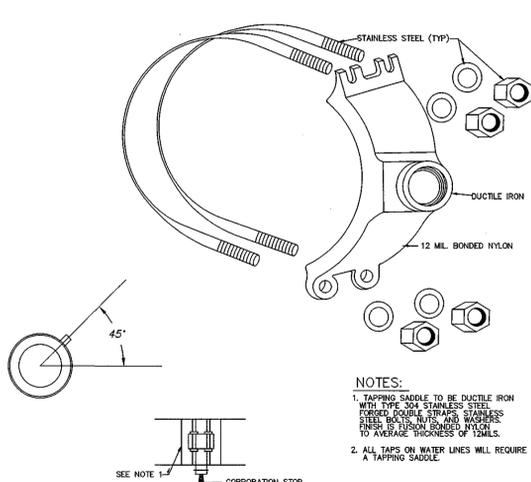
EFFINGHAM COUNTY

PERMANENT SAMPLING STATION

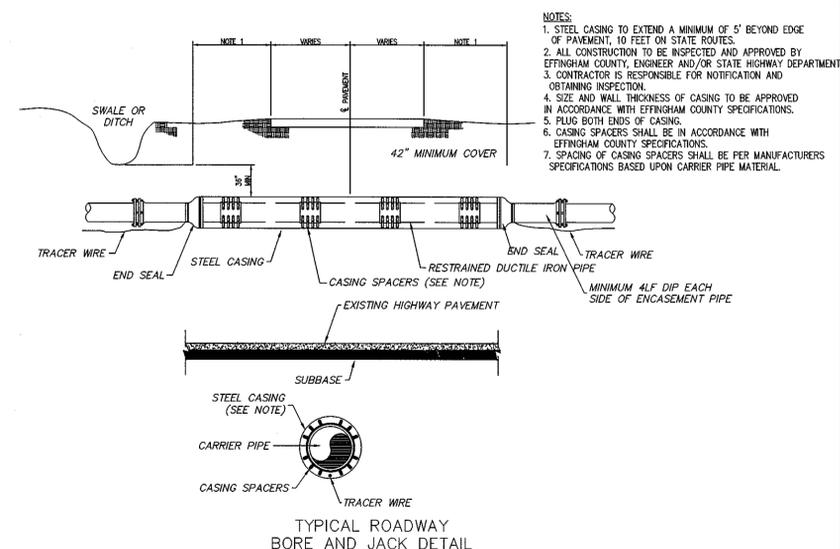
SCALE: N.T.S.  
DATE: August 2004  
W-11



- NOTE 1: WATER MAIN LINE VALVE MARKERS SHALL BE PAINTED FEDERAL SAFETY BLUE AND MARKED AS FOLLOWS:  
MV - MAIN VALVE  
AV - AIR RELEASE VALVE  
PIPELINE - PIPELINE MARKER
- NOTE 2: DO NOT WRAP WIRE AROUND VALVE NUT.



- NOTES:
1. TAPPING SADDLE TO BE DUCTILE IRON WITH TYP. 304 STAINLESS STEEL. FIBER DOUBLE STRAND STAINLESS STEEL BOLT, NUTS, AND WASHERS TO AVERAGE THICKNESS OF 1/4".
  2. ALL TAPS ON WATER LINES WILL REQUIRE A TAPPING SADDLE.



- NOTES:
1. STEEL CASING TO EXTEND A MINIMUM OF 5' BEYOND EDGE OF PAVEMENT, 10 FEET ON STATE ROUTES.
  2. ALL CONSTRUCTION TO BE INSPECTED AND APPROVED BY EFFINGHAM COUNTY, ENGINEER AND/OR STATE HIGHWAY DEPARTMENT AND OBTAINING INSPECTION.
  3. CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION AND OBTAINING INSPECTION.
  4. SIZE AND WALL THICKNESS OF CASING TO BE APPROVED IN ACCORDANCE WITH EFFINGHAM COUNTY SPECIFICATIONS.
  5. PLUS BOTH ENDS OF CASING.
  6. CASING SPACERS SHALL BE IN ACCORDANCE WITH EFFINGHAM COUNTY SPECIFICATIONS.
  7. SPACING OF CASING SPACERS SHALL BE PER MANUFACTURERS SPECIFICATIONS BASED UPON CARRIER PIPE MATERIAL.

EFFINGHAM COUNTY

VALVE DETAIL

SCALE: N.T.S.  
DATE: August 2004  
W-2

EFFINGHAM COUNTY

1" & 2" TAPPING SADDLE

SCALE: N.T.S.  
DATE: August 2004  
W-8

EFFINGHAM COUNTY

JACK AND BORE DETAIL (WATER SYSTEM ONLY)

SCALE: N.T.S.  
DATE: August 2004  
W-6



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CIVIL ENGINEER  
MARINE ENVIRONMENTAL SURVEY

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**CONSTRUCTION DETAILS**

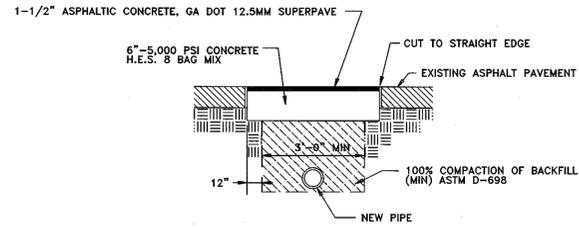
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9TH G.M. DISTRICT  
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Prepared for:  
**EFFINGHAM COUNTY BOARD OF COMMISSIONERS**

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SURVEY DATE:  
CHECKED BY: ABM  
SCALE: N/A  
DATE: MAY 2016

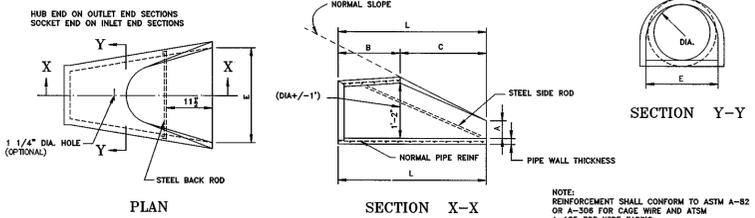
SHEET  
**26**  
OF 27

NOTE:  
ALL LATERAL STREET CUTS MUST BE COVERED WITH STEEL PLATES OF SUFFICIENT THICKNESS TO SPAN THE CUT WITHOUT NOTICEABLE DEFLECTION. PLATES TO REMAIN IN PLACE UNTIL THE CONCRETE BASE HAS GAINED SUFFICIENT STRENGTH TO WITHSTAND TRAFFIC LOADS (24 HOURS MINIMUM).

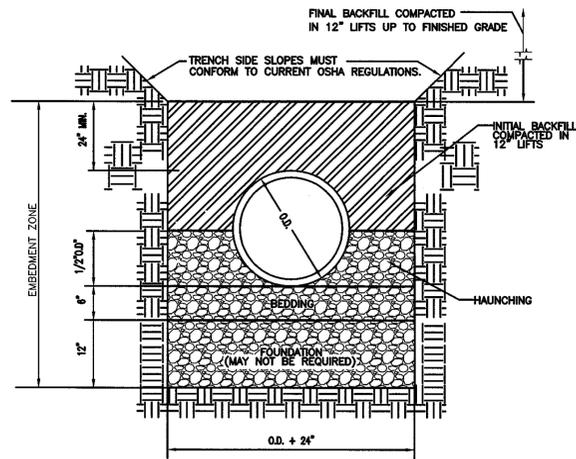


EFFINGHAM COUNTY	PAVEMENT REPLACEMENT	SCALE: N.T.S.	P-13
		DATE: August 2004	

FLARE REINFORCEMENT & DIMENSIONS (+/-1" TOLERANCE)									
PIPE DIA.	SIZE RODS	BACK RODS	FABRIC	SLOPE	A	B	C	L	E
12"	2-3x2 1/2"	NOT REQ'D	2"x8"/8"	2.2:1	4"	2'0"	4'1"	6'1"	2'0"
15"	2-3x2 1/4"	NOT REQ'D	2"x8"/8"	2.2:1	6"	2'3"	3'10"	6'1"	2'6"
18"	2-3x3"	NOT REQ'D	2"x8"/8"	2.2:1	9"	2'3"	3'10"	6'1"	3'0"
24"	2-3x5'0"	NOT REQ'D	2"x8"/8"	2.4:1	10"	3'8"	2'6"	6'2"	4'0"
30"	2-4x5'2"	NOT REQ'D	2"x8"/8"	2.4:1	12"	4'6"	1'8"	6'2"	5'0"
36"	2-4x7'5"	NOT REQ'D	2"x8"/8"	2.4:1	15"	5'3"	2'11"	6'2"	6'0"
42"	2-4x8'7"	NOT REQ'D	2"x8"/8"	2.4:1	21"	5'3"	2'11"	6'2"	6'6"



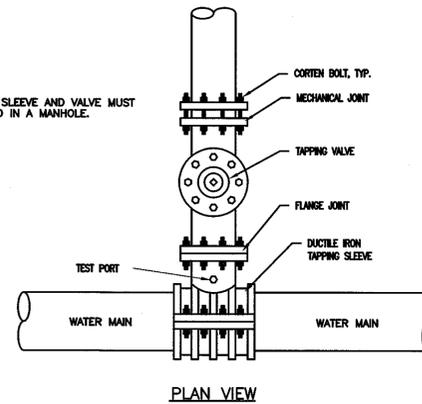
EFFINGHAM COUNTY	FLARED END SECTION DETAIL	SCALE: N.T.S.	P-33
		DATE: August 2004	



- NOTES:
- FOUNDATION, BEDDING AND HAUNCHING SHALL BE #57 STONE.
  - INITIAL BACKFILL FOR GRAVITY SEWER SHALL BE CLASS II OR BETTER SELECT COMMON FILL.
  - INITIAL BACKFILL FOR SANITARY FORCEMAIN SHALL BE CLASS III OR BETTER SELECT COMMON FILL.
  - FINAL BACKFILL SHALL BE CLASS III OR BETTER COMMON FILL.
  - SEE CITY OF SAVANNAH STANDARD SPECIFICATIONS SECTION 02554 PART 2.11 FOR MORE DETAILS.

STANDARD PIPE BEDDING DETAIL  
SCALE: NTS

NOTE:  
1. THE TAPPING SLEEVE AND VALVE MUST BE INSTALLED IN A MANHOLE.



TAPPING SLEEVE DETAIL  
SCALE: NTS



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SHEET  
**27**  
OF 27