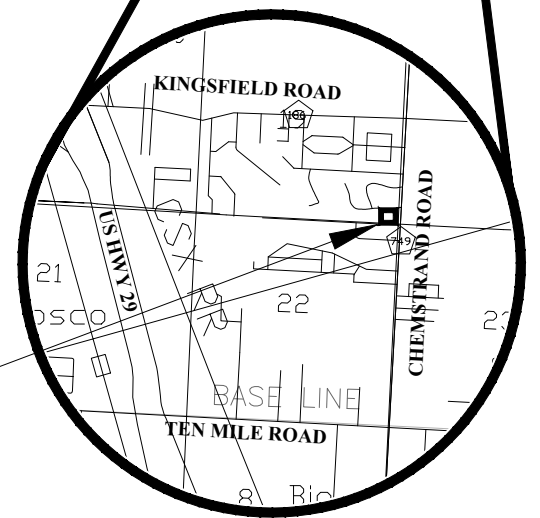
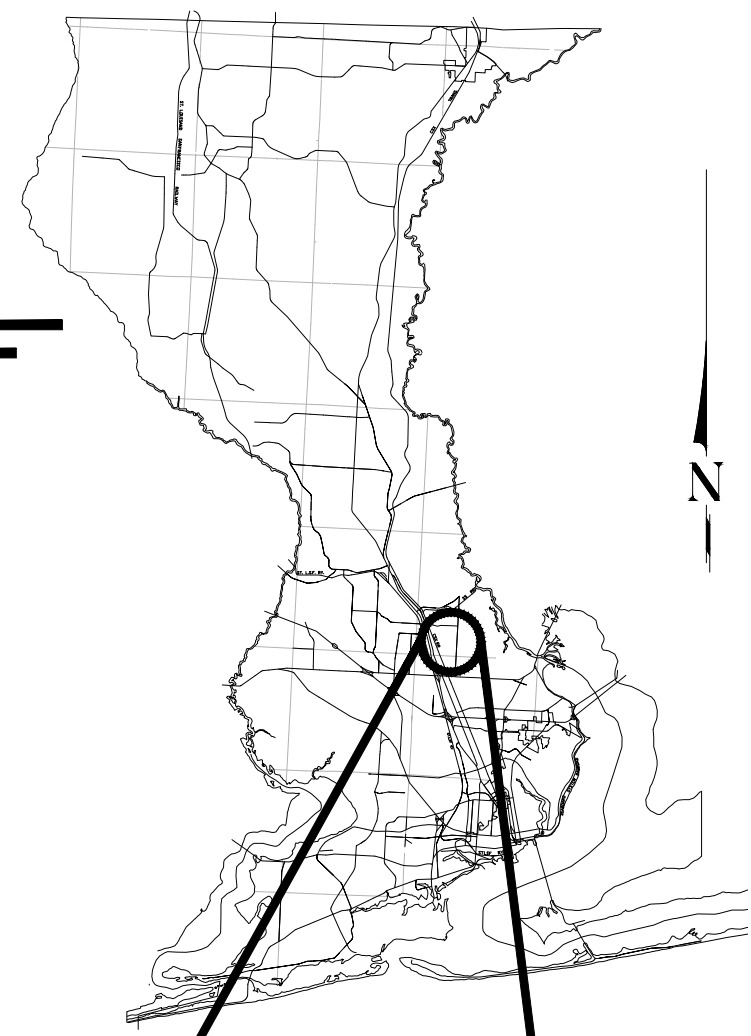




# BOARD OF COUNTY COMMISSIONERS ESCAMBIA COUNTY, FLORIDA ENGINEERING DEPARTMENT



PLANS PROPOSED FOR

## WILLOWBROOK LAKE DAM REPLACEMENT PROJECT

### INDEX OF ROADWAY PLANS

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4	SWPPP NOTES
5	SWPPP DETAILS
6	TYPICAL SECTION
7	PROJECT LAYOUT & DEMO PLAN
8	PLAN & PROFILE
9 - 10	SPILLWAY DETAILS
11 - 20	CROSS SECTIONS
21	DRAIN DIAPHRAGM DETAIL
22 - 23	U-WALL DETAILS



**SIGMA**  
 CONSULTING  
 GROUP, INC.  
 3298 SUMMIT BOULEVARD, SUITE 32  
 PENSACOLA, FLORIDA 32503  
 PHONE: (850) 332-7912  
 CERTIFICATE OF AUTHORIZATION #26889

**FINAL PLANS  
 JUNE 2018**

PROJECT SITE

**VICINITY MAP**

#### COMMISSIONERS

- |                |                           |
|----------------|---------------------------|
| DISTRICT ONE   | JEFF BERGOSH (CHAIRMAN)   |
| DISTRICT TWO   | DOUG UNDERHILL            |
| DISTRICT THREE | LUMON MAY (VICE CHAIRMAN) |
| DISTRICT FOUR  | GROVER C. ROBINSON, IV    |
| DISTRICT FIVE  | STEVEN BARRY              |

PROJECT MANAGER: Mrs. Liz Bush	
SECTION / TOWNSHIP / RANGE: 22 / T-1-N / R-30-W	DISTRICT: V
PROJECT ENGINEER: Jason L. Lashley, P.E.	REG FLA ENG NO: 57353
SIGNATURE:	DATE:

**GENERAL NOTES:**

- THE CONTRACTORS SHALL NOTIFY THE COUNTY DESIGN ENGINEER OR DESIGNEE 48 HOURS PRIOR TO CONSTRUCTION.
- ALL CONDITIONS AND STIPULATIONS OF THE CONSTRUCTION PERMITS AND THE APPROVALS ISSUED BY THE ESCAMBIA COUNTY ENGINEER SHALL BE COMPLIED WITH IN EVERY DETAIL.
- ALL ROADS DAMAGED BY CONSTRUCTION OPERATIONS ARE TO BE PATCHED OR RECONSTRUCTED AS DIRECTED BY THE COUNTY ENGINEER OR DESIGNEE.
- THE CONTRACTOR SHALL TAKE STEPS NECESSARY TO PREVENT EROSION AND ANY OFF SITE SEDIMENT TRANSPORT RESULTING FROM INCREASED RUNOFF DURING CONSTRUCTION BY PROVIDING SILT FENCE AND/OR STAKED HAY BALES AS REQUIRED BY THE FLORIDA STORMWATER, EROSION, AND SEDIMENT CONTROL INSPECTOR'S MANUAL, 2000 EDITION, OR AS INDICATED ON THE PLANS. ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL ASSOCIATED DISTURBED AREAS ARE STABILIZED AS TO REDUCE SEDIMENT RUNOFF, UNLESS OTHERWISE DIRECTED BY THE ENGINEER OR DESIGNEE.
- ANY NECESSARY PERMITS NOT PROVIDED BY THE ENGINEER WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. ESCAMBIA COUNTY OR ITS DESIGNEE WILL ASSIST CONTRACTOR WITH REQUIRED PERMITS.
- THE CONTRACTOR IS CAUTIONED TO VISIT THE SITE AND FAMILIARIZE HIMSELF WITH THE PROJECT PRIOR TO BIDDING AND/OR CONSTRUCTION.
- IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PRESERVE OR RELOCATE ALL BENCHMARKS (VERTICAL CONTROL) AS NEEDED DURING CONSTRUCTION. ALL PUBLIC OR PRIVATE CORNER MONUMENTATION SHALL BE PROTECTED. IF A PUBLIC OR PRIVATE CORNER MONUMENTATION IS IN DANGER OF BEING DESTROYED AND HAS NOT BEEN PROPERLY REFERENCED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OR DESIGNEE IMMEDIATELY. ANY ESCAMBIA COUNTY HARN/GPS NETWORK MONUMENTS OR BUREAU OF SURVEY AND MAPPING GPS NETWORK MONUMENTS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED. IF A HARN/GPS NETWORK MONUMENTS OR BUREAU OF SURVEY AND MAPPING GPS NETWORK MONUMENTS ARE DISTURBED OR DESTROYED THE CONTRACTOR SHALL BE RESPONSIBLE FOR RELACEMENT OF THE MONUMENTS AND HAVE THE MONUMENTS POSITION DETERMINED BY A FLORIDA LICENSED PROFESSIONAL SURVEYOR AND MAPPER USING GUIDELINES AS ESTABLISHED BY NATIONAL GEODETIC SURVEY FOR BLUE BOOKING AND APPROVAL.
- EXISTING DRAINAGE FEATURES WITHIN CONSTRUCTION LIMITS SHALL REMAIN UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL MATCH EXISTING CONDITIONS AT THE BEGINNING AND END OF CONSTRUCTION AS DIRECTED BY THE COUNTY ENGINEER OR DESIGNEE.
- EXISTING STREETS AND DRIVES SHALL BE MAINTAINED TO LOCAL TRAFFIC AND PROPERTY OWNERS.
- ALL ROADWAY CONSTRUCTION SHALL COMPLY WITH THE ESCAMBIA COUNTY TECHNICAL SPECIFICATIONS, LATEST EDITION UNLESS OTHERWISE NOTED IN THE PLANS OR GEOTECHNICAL REPORT.
- ALL MATERIALS, TESTING AND CONSTRUCTION METHODS SHALL CONFORM TO THE ESCAMBIA COUNTY TECHNICAL SPECIFICATIONS, LATEST EDITION.
- ANY REFERENCE TO FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION, DIVISION 1, GENERAL REQUIREMENTS AND COVENANTS, SHALL BE EXCLUDED AND NOT APPLICABLE TO ANY SPECIFICATION REFERRED HEREIN OR OTHERWISE LISTED IN THESE PLANS OR RELATED DOCUMENTS OR THE ESCAMBIA COUNTY TECHNICAL SPECIFICATIONS.
- EXISTING STREET AND ROAD NAME SIGNS ON THE PROJECT SHALL BE KEPT VISIBLE AT ALL TIMES FOR THE FACILITATION OF ACCESS BY EMERGENCY VEHICLES. ALL OTHER EXISTING SIGNS THAT CONFLICT WITH CONSTRUCTION OPERATIONS SHALL BE TAKEN DOWN AND STOCKPILED WITHIN THE R/W LIMITS BY THE CONTRACTOR AS DIRECTED BY THE COUNTY ENGINEER OR DESIGNEE. ANY EXISTING SIGNS THAT ARE TO BE RELOCATED AND ARE DAMAGED BEYOND USE BY THE CONTRACTOR SHALL BE REPLACED BY THE CONTRACTOR AT HIS EXPENSE.
- THE CONTRACTOR SHALL MAINTAIN AT LEAST ONE 10' OPEN LANE AT ALL TIMES. NO OPEN EXCAVATION SHALL REMAIN OVER NIGHT. CONTRACTOR SHALL RESTORE ROAD TO TWO LANES OF TRAFFIC AT THE END OF EACH WORK DAY.
- CONTRACTOR SHALL COMPLY WITH ALL F.D.E.P. AND ARMY CORP. OF ENGINEERS REQUIREMENTS.
- ONLY ACCESS TO THE ROAD R/W AS SHOWN IS GUARANTEED BY THE COUNTY. PRIVATE R/W REQUIRED BY THE CONTRACTOR TO FACILITATE CONSTRUCTION SHALL BE ACQUIRED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION OR ASSISTANCE FROM THE COUNTY.
- IN THE EVENT THAT SURVEY MONUMENTATION OR REFERENCE POINTS ARE MISSING OR HAVE BEEN DESTROYED, PLEASE CONTACT:  
  

JOE BARRETT, PLS ESCAMBIA COUNTY SURVEYOR 3363 WEST PARK PLACE PENSACOLA, FLORIDA 32505 PH (850) 595-3427	DAVID GLAZE PITTMAN GLAZE AND ASSOCIATES 5700 N DAVIS HWY #3 PENSACOLA, FL, 32503, (850) 434-6666
--	--
- VEGETATION ON R/W AND EASEMENTS SHALL BE RESTORED TO ORIGINAL CONDITION UNLESS OTHERWISE NOTED ON THE PLAN SHEETS. COST OF SAID RESTORATION SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS.
- GRADED AGGREGATE BASE SHALL BE REQUIRED WHERE THE SEASONAL HIGH GROUND WATER ENCROACHES WITHIN TWO (2) FEET OF THE BOTTOM OF BASE.
- ALL TREES WITHIN LIMITS OF CONSTRUCTION SHALL REMAIN UNLESS OTHERWISE NOTED IN PLANS.
- MAINTENANCE OF TRAFFIC AS PER FDOT INDEX 600.
- ALL SPEED BUMPS THAT ARE DISTURBED DURING CONSTRUCTION SHALL BE REPLACED TO THE LATEST ESCAMBIA COUNTY DESIGN SPECIFICATIONS. ALL COSTS FOR REPLACEMENT OF SAID SPEED BUMPS SHALL BE INCIDENTAL TO OTHER ITEMS AND NO ADDITIONAL COMPENSATION SHALL BE CONSIDERED.
- ALL EXISTING MAILBOXES INTERFERING WITH NEW CONSTRUCTION SHALL BE RELOCATED OR REPLACED BY THE CONTRACTOR IN ACCORDANCE WITH POSTAL REQUIREMENTS AND IN ACCORDANCE WITH ESCAMBIA COUNTY TECHNICAL SPECIFICATION, FDOT DESIGN STANDARDS AND UNITED POSTAL REQUIREMENTS. ALL EXISTING BRICK MAILBOXES WITHIN LIMITS OF CONSTRUCTION OR COUNTY RIGHT OF WAY SHALL BE REMOVED AND PLACED ON THE PROPERTY LINE OF THE OWNER. CONTRACTOR SHALL REPLACE EXISTING BRICK MAILBOX WITH APPROVED PLASTIC BREAK AWAY MAILBOX.
- THE CONTRACTOR SHALL, AT A MINIMUM, MATCH EXISTING SIGNING AND PAVEMENT MARKINGS. ALL SIGNING AND PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE LATEST FDOT DESIGN STANDARDS. THE CONTRACTOR SHALL CONTACT THE COUNTY TRAFFIC DEPARTMENT PRIOR TO INSTALLATION OF ANY SIGNING AND PAVEMENT MARKINGS.
- WHERE UNSUITABLE MATERIAL, AS DEFINED BY THE COUNTY SPECIFICATIONS SECTION 02300, 1.3(I), IS ENCOUNTERED IN THE AREAS PROPOSED FOR PAVING, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COUNTY ENGINEER OR DESIGNEE PRIOR TO ANY EXCAVATION.
- PIPE LENGTHS SHOWN IN THE PLANS DO NOT INCLUDE THE LENGTH OF PIPE THAT MUST BE INSTALLED WITH THE MITERED END SECTION. THEREFORE, ALL PIPES LENGTHS ASSOCIATED WITH MITERED END SECTIONS SHALL BE PAID FOR IN THE UNIT COST OF THE MITERED END SECTION.

- IF ARCHAEOLOGICAL MATERIAL/PREHISTORIC ARTIFACTS SUCH AS POTTERY OR CERAMICS, STONE TOOLS OR METAL IMPLEMENTS, OR ANY OTHER PHYSICAL REMAINS THAT COULD BE ASSOCIATED WITH NATIVE AMERICAN CULTURES, OR EARLY COLONIAL OR AMERICAN SETTLEMENT ARE ENCOUNTERED AT ANY TIME, THE PROJECT SHOULD CEASE ALL ACTIVITIES INVOLVING SUBSURFACE DISTURBANCE IN THE IMMEDIATE VICINITY OF SUCH DISCOVERIES. THE APPLICANT/RECIPIENT, OR OTHER DESIGNEE, SHOULD CONTACT THE FLORIDA DEPARTMENT OF STATE, DIVISION OF HISTORICAL RESOURCES, THE STATE HISTORIC PRESERVATION OFFICER (SHPO) AND THE DSH/FEMA REGION IV ENVIRONMENTAL OFFICER AND FDEM STATE ENVIRONMENTAL LIAISON OFFICER FOR FURTHER GUIDANCE. PROJECT ACTIVITIES SHOULD NOT RESUME WITHOUT WRITTEN AND/OR WRITTEN AUTHORIZATION FROM THE DIVISION OF HISTORICAL RESOURCES.
- IN THE EVENT THAT UNMARKED HUMAN REMAINS ARE ENCOUNTERED DURING PERMITTED ACTIVITIES, ALL WORK MUST STOP IMMEDIATELY AND THE PROPER AUTHORITIES NOTIFIED IN ACCORDANCE WITH F.S. 872.05.

**UTILITY NOTES:**

- THE LOCATION SHOWN FOR EXISTING UNDERGROUND UTILITIES IS APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK IN EACH AREA. THE CONTRACTOR AGREES TO BE COMPLETELY RESPONSIBLE FOR ALL DAMAGES WHICH MIGHT OCCUR BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UTILITIES.
- UTILITY OWNERS SHALL BE NOTIFIED AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION SO THAT THE UTILITY OWNER CAN SPOT VERIFY AND/OR EXPOSE THEIR UTILITIES. KNOWN UTILITIES OWNERS INCLUDE:

SEWER/WATER - EMERALD COAST UTILITY AUTHORITY  
MR. BRANDON KNIGHT  
P.O. BOX 15311  
PENSACOLA, FL. 32514 PH: (850) 969-6650

ELECTRIC - GULF POWER  
MR. CHAD SWAILS  
5120 DOGWOOD DRIVE  
MILTON, FL. 32570 PH: (850) 429-2446

NATURAL GAS - ENERGY SERVICES OF PENSACOLA  
MS. DIANE MOORE  
1625 ATWOOD DRIVE  
PENSACOLA, FL. 32514 PH: (850) 474-5319

CABLE - COX CABLE  
MR. TROY YOUNG  
3405 MCLEMORE DR.  
PENSACOLA, FL. 32514 PH: (850) 232-5044

TELEPHONE - AT&T FLORIDA  
MR. JONATHAN BLANKINSHIP  
605 W GARDEN ST. 2ND FLOOR  
PENSACOLA, FL. 32502 PH: (850) 436-1489

SUNSHINE STATE ONE-CALL  
7200 LAKE ELLENOR DRIVE, SUITE 200  
ORLANDO, FL. 32809 PH: (800) 432-4770

TRAFFIC DEPARTMENT - ESCAMBIA COUNTY PUBLIC WORKS  
MRS. JOHNNY PETTIGREW  
3363 WEST PARK PLACE  
PENSACOLA, FL. 32505 PH: (850) 595-3404

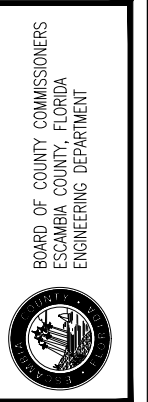
- AT&T FLORIDA WILL COMPLETE ALL WORK DURING THE HOURS OF 7:30 AM - 4:30 PM, MONDAY THRU FRIDAY. NO NIGHT OR WEEKEND WORKWORK.
- ALL CABLE DAMAGE MUST BE REPORTED TO THE ATT FLORIDA REPAIR SERVICE DEPARTMENT AT 611 FROM A LAND LINE OR 877-737-2478 IF USING A CELL PHONE.
- CONTRACTOR IS TO USE CAUTION WHEN WORKING IN OR AROUND AREAS OF OVERHEAD TRANSMISSION LINES AND UNDERGROUND UTILITIES.
- UTILITIES TO REMAIN AND BE PROTECTED DURING CONSTRUCTION. NECESSARY REPAIRS SHALL BE CONSIDERED INCIDENTAL TO OTHER PAY ITEMS AND SHALL BE TO THE SATISFACTION OF UTILITY OWNERS.

**DEWATERING NOTES:**

- DEWATERING IS EXPECTED FOR THE CONSTRUCTION OF THIS PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE DAM EMBANKMENT IS CONSTRUCTED IN DRY CONDITIONS. CONSTRUCTION AND DEMOLITION OF TEMPORARY DEWATERING SYSTEM INCLUDING ALL MATERIALS, LABOR, AND OTHER WORK EFFORT ANCILLARY TO THE SUCCESSFUL COMPLETION OF THIS CONSTRUCTION ACTIVITY SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR DEWATERING, LUMP SUM. FOR ADDITIONAL SOILS INFORMATION AND SUBGRADE PREPARATION REFER TO PROJECT GEOTECHNICAL REPORT PREPARED BY: NOVA ENGINEERING AND ENVIRONMENTAL DATED JULY 12, 2016 (NOVA PROJECT NUMBER: 8216027).
- DEWATERING MAY INCLUDE BUT NOT BE LIMITED TO COFFER DAM, WELL POINT SYSTEM, OR BYPASS METHODOLOGIES.
- ALL DEWATERING COSTS ASSOCIATED WITH THE PERMITTING, INSTALLATION, MAINTENANCE AND CONSTRUCTION OF PROPOSED DEWATERING SYSTEM SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR DEWATERING, LUMP SUM. THE CONTRACTOR SHALL SUBMIT FOR PERMITS REQUIRED FOR DEWATERING ACTIVITIES.
- THE CONTRACTOR SHALL PROVIDE A DEWATERING/DIVERSION PLAN TO ESCAMBIA COUNTY FOR REVIEW PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.

**GEOTECHNICAL NOTES:**

- FOR ADDITIONAL SOILS INFORMATION AND SUBGRADE PREPARATION REFER TO PROJECT GEOTECHNICAL REPORT PREPARED BY: NOVA ENGINEERING AND ENVIRONMENTAL DATED JULY 12, 2016 (NOVA PROJECT NUMBER: 8216027).



WILLOWBROOK LAKE DAM REPLACEMENT GENERAL NOTES

NO.	REVISION	DATE

Project Number:	160101
Date:	JUNE 2018
Drawn By:	C.W.H.
Designed By:	F.E.A.
Checked By:	J.L.L.
Sheet:	2

P:\Projects Directory\160101 - Willowbrook Lake Dam\01800 (CAD Drawings)\DWG\160101.GeneralNotes.dwg, Jun 11, 2018 - 1:52:13PM, FAvera

**Bid Tabulation  
Willowbrook Lake Dam Replacement Project  
Final Submittal  
June 8, 2018**

**SURVEYOR'S NOTES:**

- The underground utilities shown have been located from field survey information and existing drawings. The surveyor has not physically located the underground utilities. The surveyor does not certify that the underground utilities shown comprise all such utilities or that they are the exact size, material, or location as indicated.
- This survey does not reflect or determine ownership.
- This survey is subject to any facts that may be disclosed by a full and accurate title search.
- This survey is subject to setbacks, easements, and restrictions of record.
- To assure the contractor is on the same vertical and horizontal datum as this survey, it is strongly recommended that vertical checks be made between two benchmarks and that horizontal checks be made between three control points or property corners.
- Footings and foundations below natural ground not located.
- Due to current safety regulations, we are unable to access any sewer manholes and/or structures in order to verify pipe size or material. Pipe size and material has been shown as per plans or by approximate measurements. It is strongly recommended that size and material be verified before any design work begins.
- Coordinates shown are State Plane Coordinates referenced to N.A.D. 83 datum, 2011 adjustment, Florida North Zone and expressed in U.S. survey feet.
- Coordinates and elevations based on Escambia County geodetic control points:  

ESC 4063	ESC 4064	FLGPS 1
N 573012.68	N 572894.86	N 570874.67
E 1104904.78	E 1109260.70	E 1093226.20
Z 90.845	Z 22.60	Z 122.90

**UTILITY COMPANIES:**

Utility information shown as per field information and information furnished by utility companies involved.  
 TELEPHONE - AT & T, Inc., 605 West Garden Street, Pensacola, Florida 32501; (850) 436-1616  
 ELECTRIC - Gulf Power Company, 9220 Pine Forest Road, Pensacola, Florida 32534; (850) 484-5770  
 SANITARY SEWER/WATER - Emerald Coast Utility Authority, Ellyson Industrial Park, Pensacola, Florida; (850) 476-5110  
 NATURAL GAS - Pensacola Energy, 16 South Palafox Street, Pensacola, Florida; (850) 474-5322

**BENCHMARKS:**

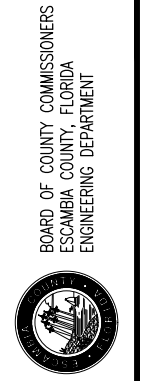
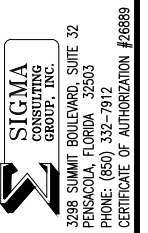
- 1534/72 - A PK nail in the south side of a light pole located in the north right of way of Dye Street, 20+/- west of the west right of way of Chemstrand Road.  
 Elevation = 79.20'
- 1534/72A - A PK nail in the south side of a power pole located in the north right of way of Dye Street, 140+/- west of the west right of way of Chemstrand Road.  
 Elevation = 76.58'
- 1534/72B - A PK nail in the north side of a power pole located in the south right of way of Orby Street, 230+/- west of the west right of way of Chemstrand Road.  
 Elevation = 71.79'
- 1534/72C - A PK nail in the north side of a power pole located in the south right of way of Orby Street and the west right of way of Chemstrand Road.  
 Elevation = 69.50'

**LEGEND:**

- R/W Right of way
- FFE Finished floor elevation
- BM Benchmark
- ELEV Elevation
- CP Concrete pipe
- INV Invert
- T.O.P. Top of pipe elevation
- Oak tree
- Crepe myrtle
- Pine tree
- 1/2" Capped iron rod set #7073
- 1/2" Capped iron rod found #noted
- 4x4 Concrete monument found #noted
- D.O.T. concrete monument found
- Permanent control point found #noted
- Nail and flag set
- Brick column
- Fire hydrant
- Valve manhole
- Water valve
- Telephone equipment
- Ground light
- Soil boring
- Light pole
- Power pole
- Guy wire
- Water marker
- Storm inlet
- Road sign
- Gas marker
- Spot elevation
- Contour line
- Anchor line
- Electric line
- Cable line
- Telephone line
- Gas line
- Water line
- Sanitary sewer line
- Buried telephone line
- Force main
- Chain link fence
- Wood fence
- Wire fence
- Asphalt
- Concrete
- Concrete mesh
- Rip rap

Pay Item #	Description	Units	Quantity	Unit Price	Unit Price Extension
1	Mobilization	LS	1		
2	Clearing and Grubbing (includes all removal items)	LS	1		
3	Stabilized Construction Entrance	SY	71		
4	Dewatering	LS	1		
5	Earthwork Excavation (in-place, estimated 8976 CY)	LS	1		
6	Earthwork Structural Fill (in-place, estimated 4499 CY)	LS	1		
7	Earthwork Clay Core (in-place, estimated 6503 CY)	LS	1		
8	Remove and Replace Unsuitable Materials (in-place, estimated 2500CY)	LS	1		
9	Earthwork (establish grade)	LS	1		
10	Argentine Bahia Sod, Staked With 3" top soil	SY	8,216		
11	24" Reinforced Concrete Pipe	LF	208		
12	60" Reinforced Concrete Pipe	LF	189		
13	Drop Inlet w/ Trash Rack & Grate	EA	1		
14	Sluice Gate	LS	1		
15	Gangway Landing	LS	1		
16	Ditch Bottom Inlet, Type D	EA	1		
17	Class II Concrete for Wingwalls (12" thickness ) (steel included)	CY	36		
18	Connect to Existing Inlet	EA	1		
19	24" Cross Drain Mitered End Section	EA	1		
20	72" U-Type Concrete Endwall (modified)	EA	3		
21	6" Underdrain	LF	325		
22	6" Solid ADS Pipe	LF	46		
23	Underdrain Cleanout	EA	5		
24	Underdrain Inspection Box (FDOT Index No. 245)	EA	3		
25	Drain Diaphragm	LS	1		
26	Erosion Control (Silt Fence Type IV, Hay Bales, Floating Turbidity Barrier, SWPPP, NPDES Permit, & Monitoring)	LS	1		
27	Maintenance of Traffic	LS	1		
28	Articulated Concrete Block (Spillway, Armored Ditch, & Embankment Slope)	SY	586		
29	18" Rip Rap w/ 4" Bedding Stone and Geotextile	SY	338		
30	6' Chain Link Fence	LF	849		
31	6' Fence Gate	LF	24		

**Total =**



**WILLOWBROOK LAKE  
DAM REPLACEMENT  
LEGEND & BID TABULATION**

NO.	REVISION	DATE

Project Number:  
160101  
 Date:  
JUNE 2018  
 Drawn By:  
C.W.H.  
 Designed By:  
F.E.A.  
 Checked By:  
J.L.L.  
 Sheet:  
**3**

THE FOLLOWING NARRATIVE OF THE STORMWATER POLLUTION PREVENTION PLAN CONTAINS REFERENCES TO THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, THE DESIGN STANDARDS, AND OTHER SHEETS OF THESE CONSTRUCTION PLANS. THE FIRST SHEET OF THE CONSTRUCTION PLANS (CALLED THE KEY SHEET) CONTAINS AN INDEX TO THE OTHER SHEETS. THE COMPLETE STORMWATER POLLUTION PREVENTION PLAN INCLUDES SEVERAL ITEMS: THIS NARRATIVE DESCRIPTION, THE DOCUMENTS REFERENCED IN THIS NARRATIVE, THE CONTRACTOR'S APPROVED EROSION CONTROL PLAN REQUIRED BY SPECIFICATION SECTION 104, AND REPORTS OF INSPECTIONS MADE DURING CONSTRUCTION.

1.0 SITE DESCRIPTION:

1.A. NATURE OF CONSTRUCTION ACTIVITY:

THE PROJECT CONSISTS OF REMOVAL OF EXISTING EMBANKMENT SECTION AND DAMAGED SPILLWAY, DEWATERING, CONSTRUCTION OF ROADSIDE GRADING, CONSTRUCTION OF DITCH AND STORM DRAIN SYSTEMS, CONSTRUCTION OF CULVERT WINGWALLS, AND CONSTRUCTION OF PROPOSED DAM EMBANKMENT SECTION AND SPILLWAY.

1.B. SEQUENCE OF MAJOR SOIL DISTURBING ACTIVITIES:

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE A DETAILED SEQUENCE OF CONSTRUCTION FOR ALL CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL FOLLOW THE SEQUENCE OF MAJOR ACTIVITIES DESCRIBED BELOW, UNLESS THE CONTRACTOR PROPOSES A DIFFERENT SEQUENCE THAT IS EQUAL OR BETTER AT CONTROLLING EROSION AND TRAPPING SEDIMENT AND IS APPROVED BY THE ENGINEER.

FOR EACH CONSTRUCTION PHASE, INSTALL PERIMETER CONTROLS AFTER CLEARING AND GRUBBING NECESSARY FOR INSTALLATION OF CONTROLS BUT BEFORE BEGINNING OTHER WORK FOR THE CONSTRUCTION PHASE. REMOVE PERIMETER CONTROLS ONLY AFTER ALL UPSTREAM AREAS ARE STABILIZED.

1. CLEARING AND GRUBBING, EARTHWORK FOR EMBANKMENT DEMOLITION.
2. CLEARING AND GRUBBING, EARTHWORK FOR DEWATERING ACTIVITIES.
3. CLEARING AND GRUBBING, EARTHWORK FOR EMBANKMENT CONSTRUCTION.

1.C. AREA ESTIMATES:

TOTAL SITE AREA: 1.40 ACRES.  
TOTAL AREA TO BE DISTURBED: 1.40 ACRES.

1.D. RUNOFF DATA:

RUNOFF COEFFICIENTS:  
BEFORE: 0.35  
DURING: 0.35  
AFTER: 0.35  
SOILS DATA: SILT / LOAM / UNSUITABLE MATERIALS AND DEWATERING IS ANTICIPATED  
FOR ADDITIONAL SOILS DATA AND CULVERT BASE PREPARATION SEE PROJECT GEOTECHNICAL REPORT PREPARED BY:  
NOVA ENGINEERING AND ENVIRONMENTAL DATED JULY 12, 2016 (NOVA PROJECT NUMBER: 8216027).

OUTFALL INFORMATION:

THERE IS 1 EXISTING OUTFALL:

OUTFALL #1 DESCRIPTION: DAM REPLACEMENT LOCATION  
CHEMSTRAND ROAD (CR 749) AT CLEAR CREEK  
LOCATION: CHEMSTRAND ROAD APPROXIMATELY 3,300 FEET SOUTH OF KINGSFIELD ROAD (CR 186)  
DRAINAGE AREA: 1,900 ACRES  
RECEIVING WATER(S): CLEAR CREEK -> ESCAMBIA RIVER -> ESCAMBIA BAY

1.E. SITE MAP:

THE CONSTRUCTION PLANS ARE BEING USED AS THE SITE MAPS. THE LOCATION OF THE REQUIRED INFORMATION IS DESCRIBED BELOW. THE SHEET NUMBERS FOR THE PLAN SHEETS REFERENCED ARE IDENTIFIED ON THE KEY SHEET OF THESE CONSTRUCTION PLANS.

- \* DRAINAGE PATTERNS: THE DRAINAGE BASIN DIVIDES AND FLOW DIRECTIONS ARE SHOWN ON THE DRAINAGE MAP.
- \* APPROXIMATE SLOPES: THE SLOPES OF THE SITE CAN BE SEEN IN PLAN/PROFILE.
- \* AREAS OF SOIL DISTURBANCE: THE AREAS TO BE DISTURBED ARE INDICATED ON THE PLAN/PROFILE SHEETS. ANY AREAS WHERE PERMANENT FEATURES ARE SHOWN TO BE CONSTRUCTED ABOVE OR BELOW GROUND WILL BE DISTURBED.
- \* AREAS NOT TO BE DISTURBED: ESSENTIALLY THE ENTIRE PROJECT SITE WILL BE DISTURBED.
- \* LOCATIONS OF TEMPORARY CONTROLS: TO BE SHOWN ON THE CONTRACTOR'S APPROVED EROSION CONTROL PLAN. SEDIMENTATION BASIN AND FLOATING / STAKED TURBIDITY BARRIER ARE SUGGESTED
- \* LOCATIONS OF PERMANENT CONTROLS: SOD ALL DISTURBED NON-PAVED AREAS (EXCLUDING DITCH BOTTOM)
- \* AREAS TO BE STABILIZED: ROADSIDE SWALES/DITCHES, LATERAL CULVERT DITCH SLOPES, AND AT FURTHEST DOWNSTREAM DITCH SECTION AT LOWER END OF CONSTRUCTION ACTIVITIES.

1.F. RECEIVING WATERS:  
SEE ITEM 1.D FOR THE OUTFALL LOCATIONS AND RECEIVING WATER NAMES. THERE ARE JURISDICTIONAL WETLANDS ON THE PROJECT SITE.

2.0 CONTROLS:

2.A. EROSION AND SEDIMENT CONTROLS:

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE PROPOSED STABILIZATION AND STRUCTURAL PRACTICES. THE FOLLOWING RECOMMENDED GUIDELINES ARE BASED ON THE GRADING PLAN OUTLINED IN THE CONSTRUCTION PLANS. THE CONTRACTOR MAY CHOOSE TO ACCEPT THE FOLLOWING GUIDELINES OR MODIFY THEM IN THE SEDIMENT AND EROSION CONTROL PLAN, SUBJECT TO APPROVAL BY THE ENGINEER. AS WORK PROGRESSES, THE CONTRACTOR SHALL MODIFY THE PLAN TO ADAPT TO SEASONAL VARIATION, CHANGES IN CONSTRUCTION ACTIVITIES, AND THE NEED FOR BETTER PRACTICES.

FOR EACH CONSTRUCTION PHASE, INSTALL PERIMETER CONTROLS AFTER CLEARING AND GRUBBING NECESSARY FOR INSTALLATION OF CONTROLS BUT BEFORE BEGINNING OTHER WORK FOR THE CONSTRUCTION PHASE. REMOVE PERIMETER CONTROLS ONLY AFTER ALL UPSTREAM AREAS ARE STABILIZED.

2.A.1 STABILIZATION PRACTICES:

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE STABILIZATION PRACTICES PROPOSED TO CONTROL EROSION. THE CONTRACTOR SHALL INITIATE ALL STABILIZATION MEASURES AS SOON AS PRACTICAL, BUT IN NO CASE MORE THAN 7 DAYS, IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. THE STABILIZATION PRACTICES SHALL INCLUDE AT LEAST THE FOLLOWING, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

THE PARAGRAPH ABOVE REFERS TO A 7 DAY LIMIT BEFORE INITIATING STABILIZATION. THE DEP GENERIC PERMIT SPECIFIES 7 DAYS, BUT STRICTER REQUIREMENTS FROM OTHER PERMITTING AGENCIES WILL OFTEN APPLY AND SHOULD BE NOTED.

TEMPORARY:  
\* ARTIFICIAL COVERINGS IN ACCORDANCE WITH SPECIFICATION SECTION 104.  
\* TURF AND SOD IN ACCORDANCE WITH SPECIFICATION SECTION 104.

PERMANENT:  
\* SOD IN ACCORDANCE WITH SPECIFICATION SECTION 570.

2.A.2 STRUCTURAL PRACTICES:

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE PROPOSED STRUCTURAL PRACTICES TO CONTROL OR TRAP SEDIMENT AND OTHERWISE PREVENT THE DISCHARGE OF POLLUTANTS FROM EXPOSED AREAS OF THE SITE. SEDIMENT CONTROLS SHALL BE IN PLACE BEFORE DISTURBING SOIL UPSTREAM OF THE CONTROL. THE STRUCTURAL PRACTICES SHALL INCLUDE AT LEAST THE FOLLOWING, UNLESS OTHERWISE APPROVED BY THE ENGINEER:

TEMPORARY:  
\* SEDIMENT BARRIERS IN ACCORDANCE WITH DESIGN STANDARD 102 AND SPECIFICATION SECTION 104.  
\* INLET PROTECTION IN ACCORDANCE WITH DESIGN STANDARD 102 AND SPECIAL DETAILS SHOWN IN THE TTC PLAN.  
\* SEDIMENT CONTAINMENT SYSTEM: SILT FENCE, HAY BALES, AND FLOATING/STAKED TURBIDITY BARRIER WILL BE UTILIZED AS THE TEMPORARY SEDIMENT CONTAINMENT SYSTEM.

PERMANENT:  
\* SOD.

2.B STORMWATER MANAGEMENT:

ARMORED SWALE AND STORM DRAIN PIPE WILL BE CONSTRUCTED TO CONVEY RUNOFF TO THE STORMWATER SYSTEM.

2.C OTHER CONTROLS:

2.C.1 WASTE DISPOSAL:

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE PROPOSED METHODS TO PREVENT THE DISCHARGE OF SOLID MATERIALS, INCLUDING BUILDING MATERIALS, TO WATERS OF THE UNITED STATES. THE PROPOSED METHODS SHALL INCLUDE AT LEAST THE FOLLOWING, UNLESS OTHERWISE APPROVED BY THE ENGINEER:  
\* PROVIDING LITTER CONTROL AND COLLECTION WITHIN THE PROJECT DURING CONSTRUCTION ACTIVITIES.  
\* DISPOSING OF ALL FERTILIZER OR OTHER CHEMICAL CONTAINERS ACCORDING TO EPA'S STANDARD PRACTICES AS DETAILED BY THE MANUFACTURER.  
\* DISPOSING OF SOLID MATERIALS INCLUDING BUILDING AND CONSTRUCTION MATERIALS OFF THE PROJECT SITE BUT NOT IN SURFACE WATERS, OR WETLANDS.

2.C.2 OFF-SITE VEHICLE TRACKING & DUST CONTROL:  
IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE PROPOSED METHODS FOR MINIMIZING OFFSITE VEHICLE TRACKING OF SEDIMENTS AND GENERATING DUST. THE PROPOSED METHODS SHALL INCLUDE AT LEAST THE FOLLOWING, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

- \* COVERING LOADED HAUL TRUCKS WITH TARPAULINS.
- \* REMOVE EXCESS DIRT FROM ROADS DAILY.
- \* STABILIZING CONSTRUCTION ENTRANCES ACCORDING TO FDOT DESIGN STANDARD 106.
- \* USING ROADWAY SWEEPERS DURING DUST GENERATING ACTIVITIES SUCH AS EXCAVATION AND HAULING OPERATIONS.

2.C.3 STATE AND LOCAL REGULATIONS FOR WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC TANK REGULATIONS:

IN THE SECTION 104 EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE PROPOSED PROCEDURES TO COMPLY WITH APPLICABLE STATE AND LOCAL REGULATIONS FOR WASTE DISPOSAL, AND SANITARY SEWER OR SEPTIC SYSTEMS.

2.C.4 FERTILIZERS AND PESTICIDES:

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL DESCRIBE THE PROCEDURES FOR APPLYING FERTILIZERS AND PESTICIDES. THE PROPOSED PROCEDURES SHALL COMPLY WITH APPLICABLE SUBSECTIONS OF SECTION 570 OF THE SPECIFICATIONS.

2.C.5 TOXIC SUBSTANCES:

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE A LIST OF TOXIC SUBSTANCES THAT ARE LIKELY TO BE USED ON THE JOB AND PROVIDE A PLAN ADDRESSING THE GENERATION, APPLICATION, MIGRATION, STORAGE, AND DISPOSAL OF THESE SUBSTANCES.

2.D.4 APPROVED STATE AND LOCAL PLANS AND PERMITS:

\* SEE CONSTRUCTION DOCUMENTS

3.0 MAINTENANCE:

IN THE SEDIMENT AND EROSION CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE A PLAN FOR MAINTAINING ALL EROSION AND SEDIMENT CONTROLS THROUGHOUT CONSTRUCTION. THE MAINTENANCE PLAN SHALL AT A MINIMUM, COMPLY WITH THE FOLLOWING:

- \* SILT FENCE: MAINTAIN PER SECTION 104. THE CONTRACTOR SHOULD ANTICIPATE REPLACING SILT FENCE ON 12 MONTH INTERVALS.
- \* SEDIMENT BARRIERS : REMOVE SEDIMENT AS PER MANUFACTURER'S RECOMMENDATIONS OR WHEN WATER PONDS IN UNACCEPTABLE AMOUNTS OR AREAS.

4.0 INSPECTIONS:

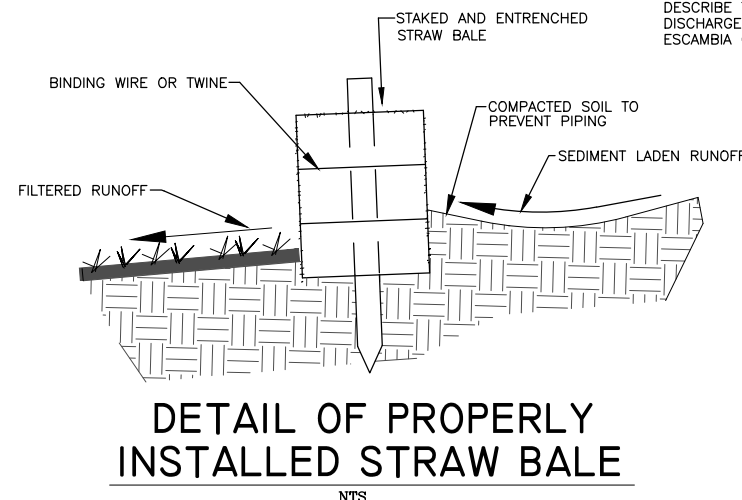
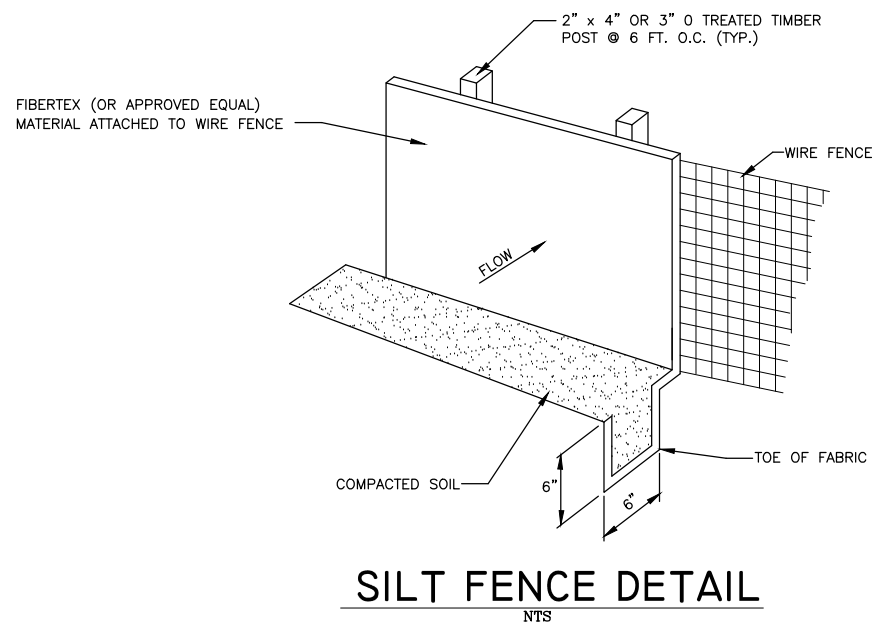
QUALIFIED PERSONNEL SHALL INSPECT THE FOLLOWING ITEMS AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.50 INCHES OR GREATER. TO COMPLY, THE CONTRACTOR SHALL INSTALL AND MAINTAIN RAIN GAUGES AND RECORD THE DAILY RAINFALL. WHERE SITES HAVE BEEN PERMANENTLY STABILIZED, INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH. THE CONTRACTOR SHALL ALSO INSPECT THAT CONTROLS INSTALLED IN THE FIELD AGREE WITH THE LATEST STORMWATER POLLUTION PREVENTION PLAN.

- \* POINTS OF DISCHARGE TO MUNICIPAL SEPARATE STORM DRAIN SYSTEMS.
- \* DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
- \* AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION.
- \* STRUCTURAL CONTROLS.
- \* STORMWATER MANagements SYSTEMS.
- \* LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.

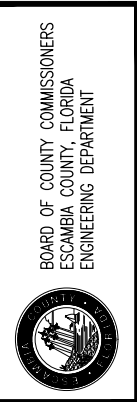
THE CONTRACTOR SHALL INITIATE REPAIRS WITHIN 24 HOURS OF INSPECTIONS THAT INDICATE ITEMS ARE NOT IN GOOD WORKING ORDER. IF INSPECTIONS INDICATE THAT THE INSTALLED STABILIZATION AND STRUCTURAL PRACTICES ARE NOT SUFFICIENT TO MINIMIZE EROSION, RETAIN SEDIMENT, AND PREVENT DISCHARGING POLLUTANTS, THE CONTRACTOR SHALL PROVIDE ADDITIONAL MEASURES, AS APPROVED BY THE ENGINEER.

5.0 NON-STORMWATER DISCHARGES:

IN THE SECTION 104 EROSION CONTROL PLAN, THE CONTRACTOR SHALL IDENTIFY ALL ANTICIPATED NON-STORMWATER DISCHARGES (EXCEPT FLOWS FROM FIRE FIGHTING ACTIVITIES). THE CONTRACTOR SHALL DESCRIBE THE PROPOSED MEASURES TO PREVENT POLLUTION OF THESE NON-STORMWATER DISCHARGES. IF THE CONTRACTOR ENCOUNTERS CONTAMINATED SOIL OR GROUNDWATER, CONTACT ESCAMBIA COUNTY ENGINEERING.



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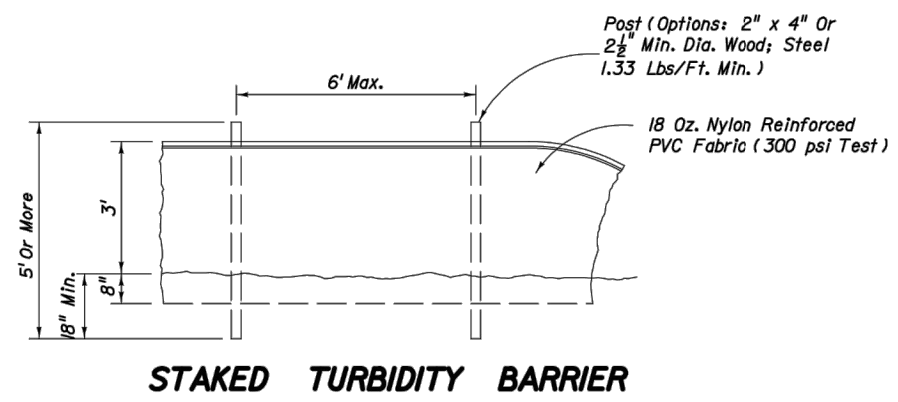
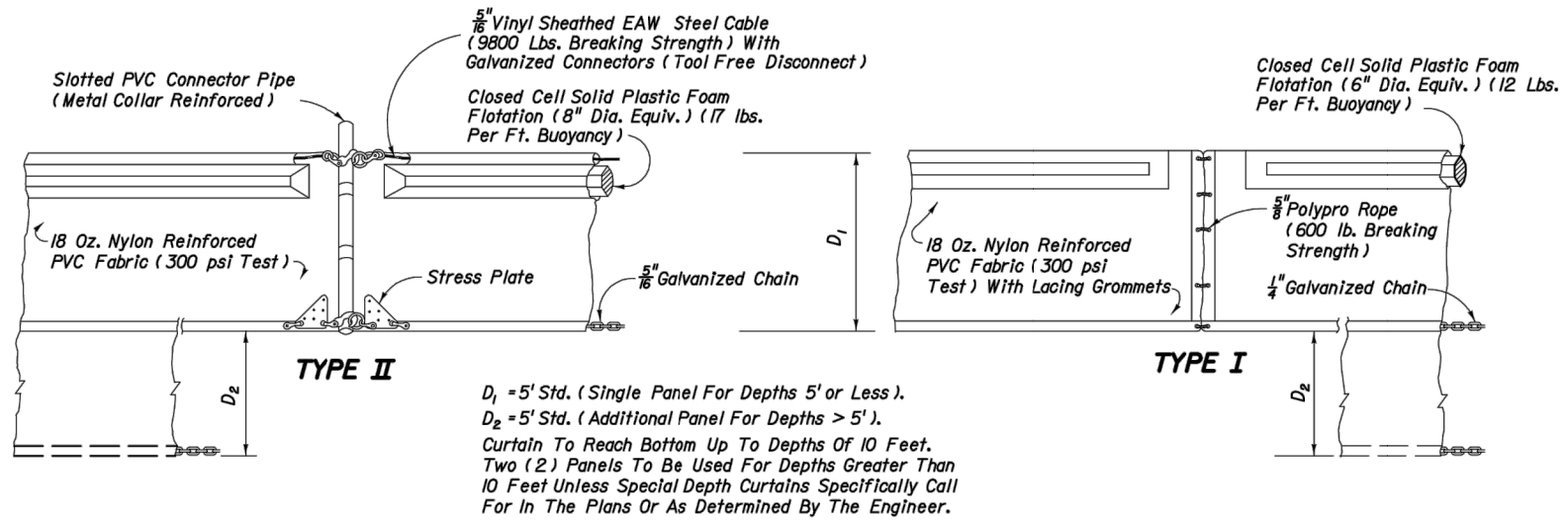


WILLOWBROOK LAKE  
DAM REPLACEMENT  
SWPPP NOTES

NO.	REVISION	DATE

Project Number:	160101
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Drawn By:	C.W.H.
Designed By:	F.E.A.
Checked By:	J.L.L.
Sheet:	4



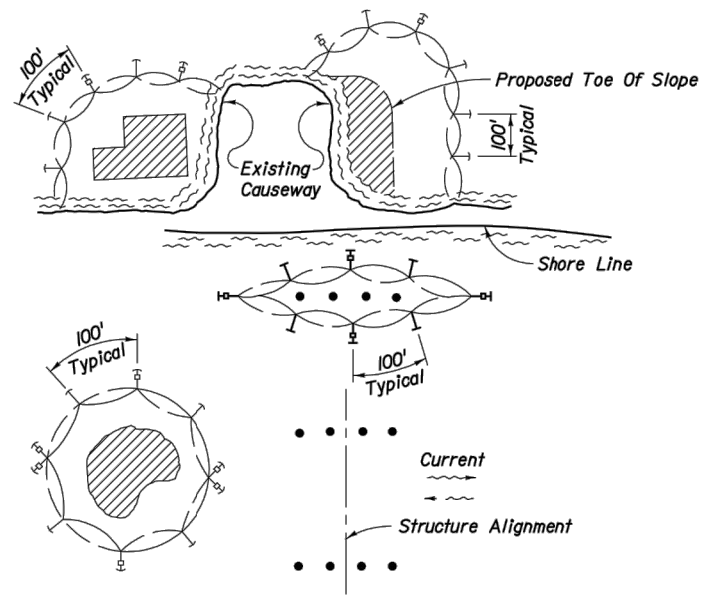


**TYPE II**  
 $D_1$  = 5' Std. (Single Panel For Depths 5' or Less).  
 $D_2$  = 5' Std. (Additional Panel For Depths > 5').  
 Curtain To Reach Bottom Up To Depths Of 10 Feet.  
 Two (2) Panels To Be Used For Depths Greater Than 10 Feet Unless Special Depth Curtains Specifically Call For In The Plans Or As Determined By The Engineer.

**TYPE I**

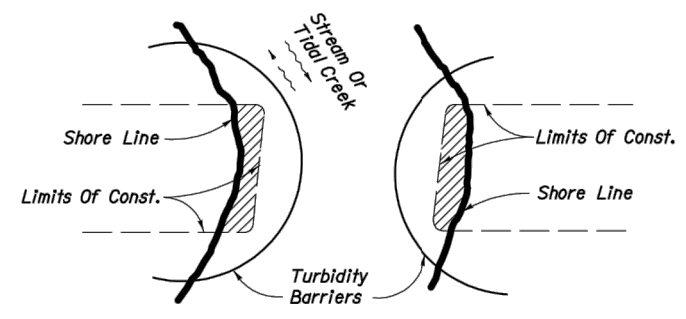
**NOTICE:** COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.

**FLOATING TURBIDITY BARRIERS**



- LEGEND**
- Pile Locations
  - ▨ Dredge Or Fill Area
  - ⊖ Mooring Buoy w/Anchor
  - ⊙ Anchor
  - ⤴ Barrier Movement Due To Current Action

- NOTES:**
1. Turbidity barriers are to be used in all permanent bodies of water regardless of water depth.
  2. Number and spacing of anchors dependent on current velocities.
  3. Deployment of barrier around pile locations may vary to accommodate construction operations.
  4. Navigation may require segmenting barrier during construction operations.
  5. For additional information see Section 104 of the Standard Specifications.



**Note:**  
 Turbidity barriers for flowing streams and tidal creeks may be either floating, or staked types or any combinations of types that will suit site conditions and meet erosion control and water quality requirements. The barrier type(s) will be at the Contractors option unless otherwise specified in the plans, however payment will be under the pay item(s) established in the plans for Floating Turbidity Barrier and/or Staked Turbidity Barrier. Posts in staked turbidity barriers to be installed in vertical position unless otherwise directed by the Engineer.

**GENERAL NOTES**

1. Floating turbidity barriers are to be paid for under the contract unit price for Floating Turbidity Barrier, LF.
2. Staked turbidity barriers are to be paid for under the contract unit price for Staked Turbidity Barrier, LF.

**TURBIDITY BARRIER APPLICATIONS**

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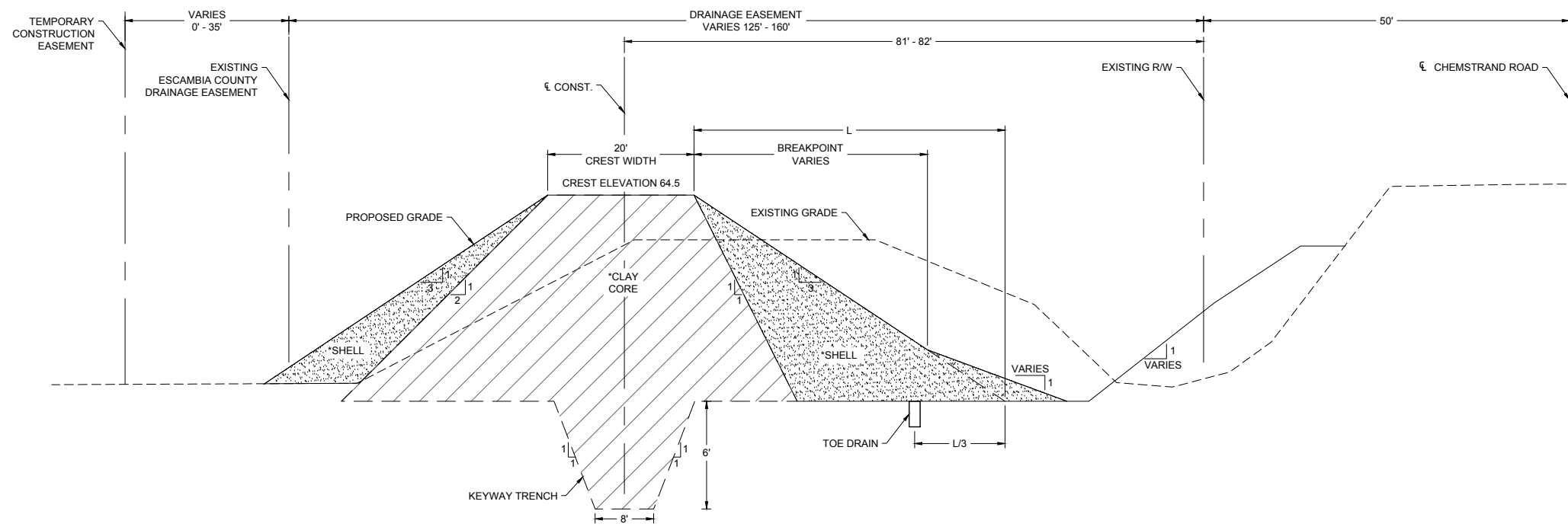
**SIGMA**  
 CONSULTING  
 GROUP, INC.  
 3296 SUMMIT BOULEVARD, SUITE 32  
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 CERTIFICATE OF AUTHORIZATION #26889

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 ESCAMBA COUNTY, FLORIDA  
 ENGINEERING DEPARTMENT

WILLOWBROOK LAKE  
 DAM REPLACEMENT  
 SWPPP DETAILS

NO.	REVISION	DATE

Project Number:  
160101  
 Date:  
JUNE 2018  
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C.W.H.  
 Designed By:  
F.E.A.  
 Checked By:  
J.L.L.  
 Sheet:  
**5**



**\* NOTES**

1. CLAY CORE AND SHELL MATERIAL SHALL CONFORM TO THE GEOTECHNICAL REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT PREPARED BY NOVA ENGINEERING & ENVIRONMENTAL DATED JULY 12, 2016 (PROJECT #8216027)

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**WILLOWBROOK LAKE  
DAM REPLACEMENT**  
TYPICAL SECTION

NO.	REVISION	DATE

Project Number:  
160101

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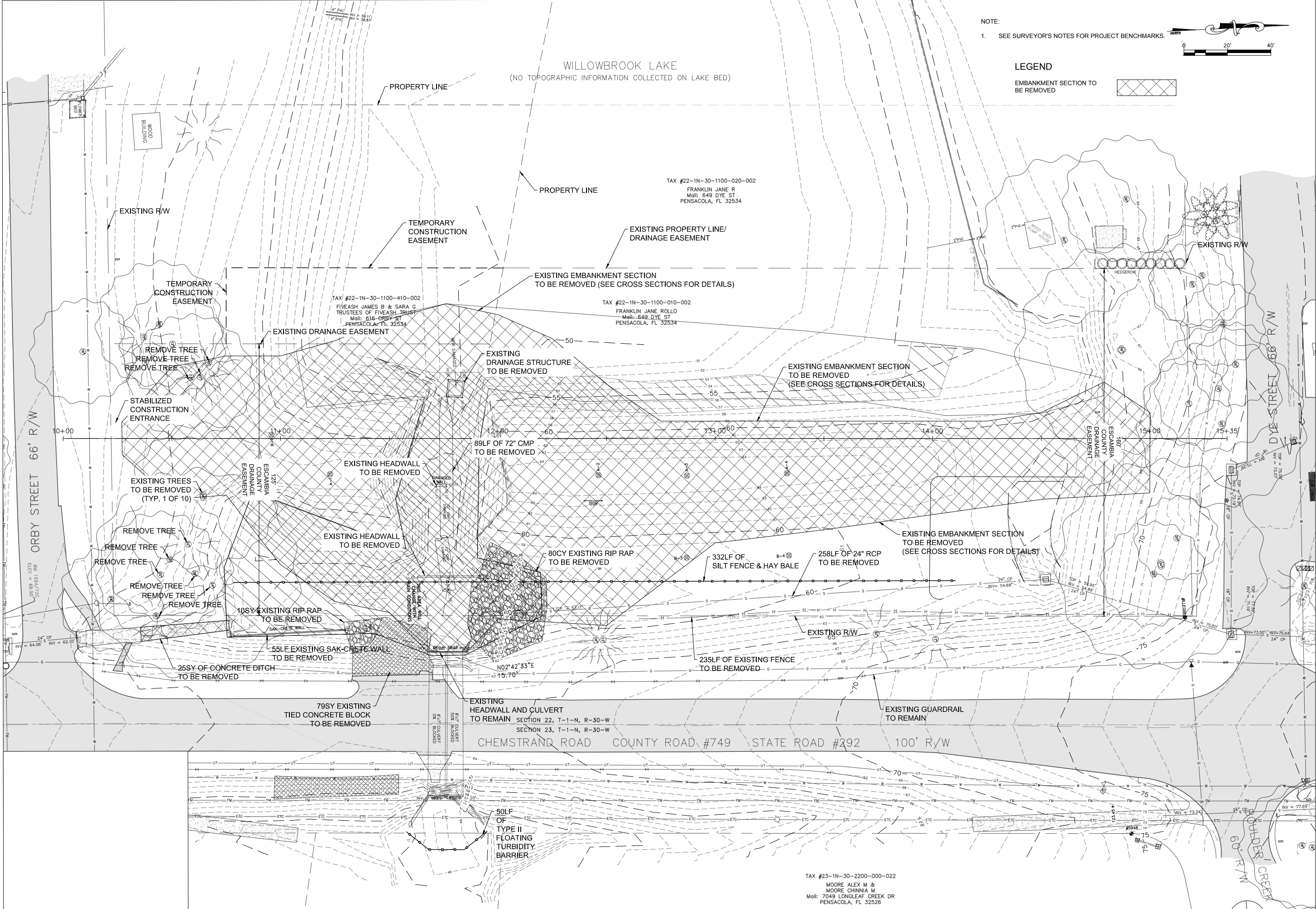
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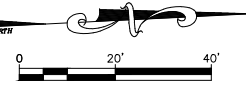
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NOTE:  
1. SEE SURVEYOR'S NOTES FOR PROJECT BENCHMARKS.

LEGEND  
EMBANKMENT SECTION TO BE REMOVED



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PENSACOLA, FL 32534

TAX #22-1N-30-1100-410-002  
FIVEASH JAMES B & SARA G  
TRUSTEES OF FIVEASH TRUST  
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**WILLOWBROOK LAKE  
DAM REPLACEMENT  
PROJECT LAYOUT & DEMO PLAN**

NO.	REVISION	DATE

Project Number:  
**160101**

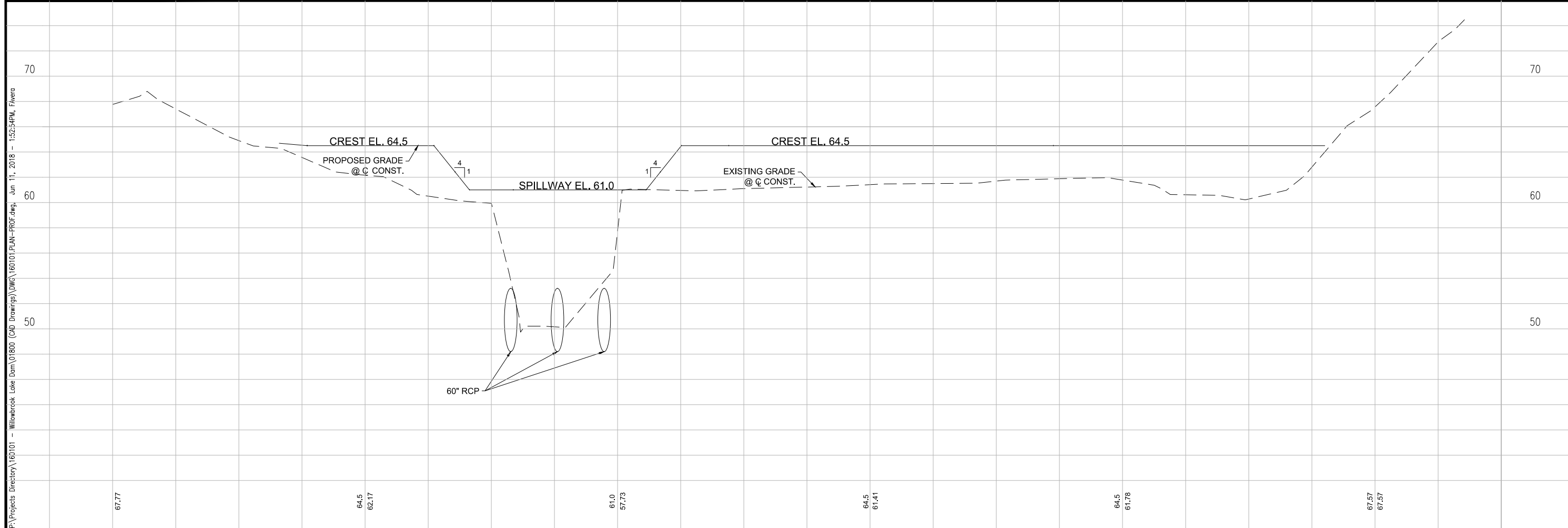
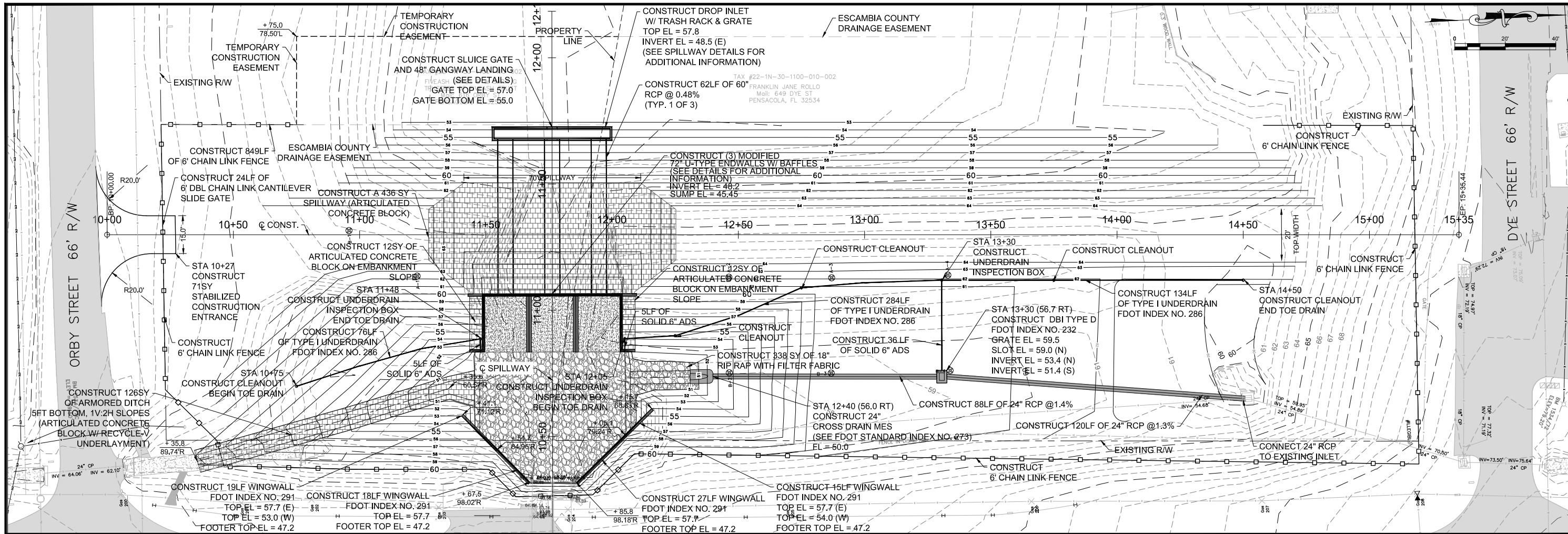
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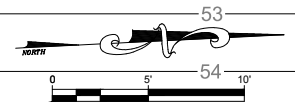
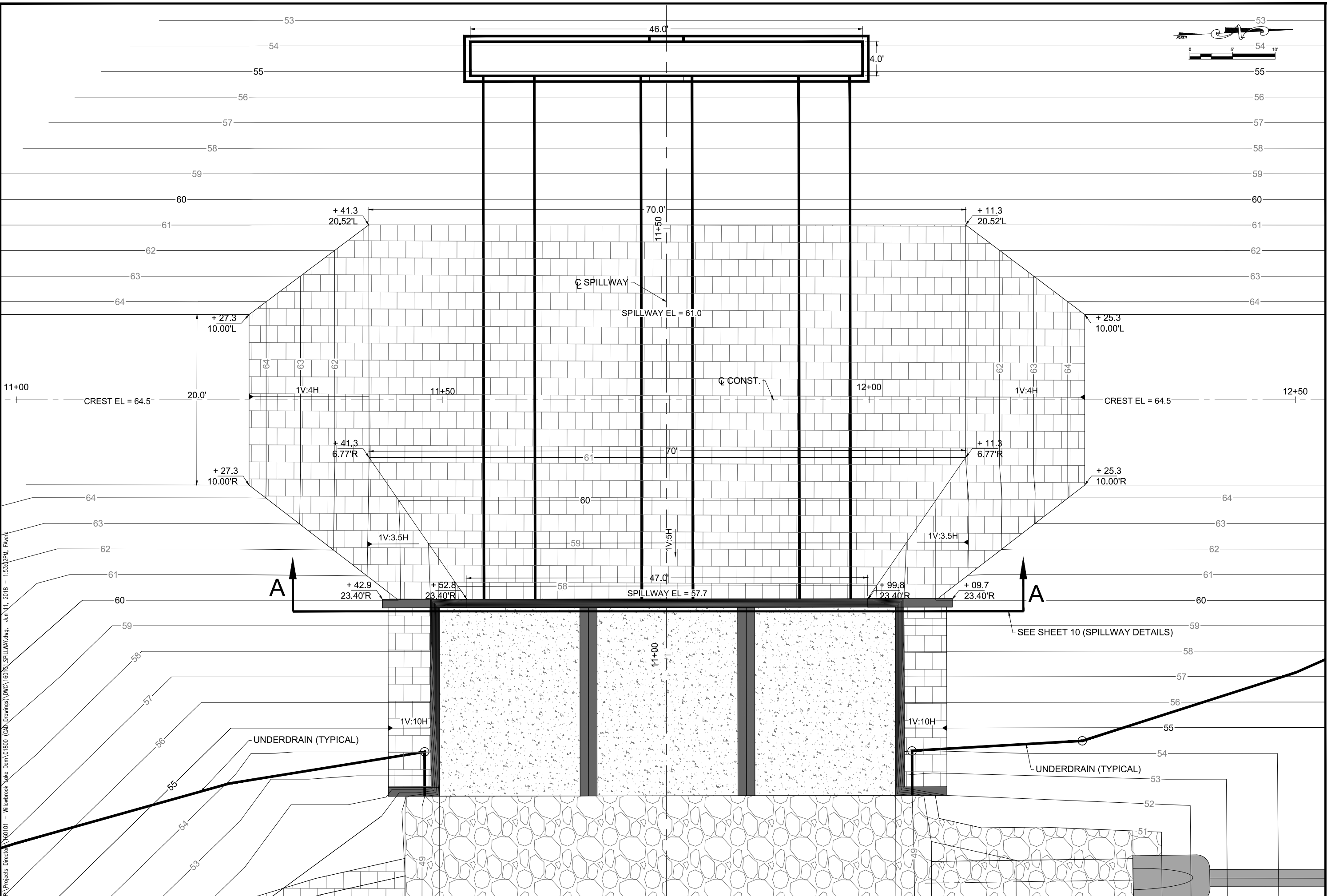
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**WILLOWBROOK LAKE  
 DAM REPLACEMENT**  
 PLAN / PROFILE

NO.	REVISION	DATE

Project Number:  
 160101  
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WILLOWBROOK LAKE  
DAM REPLACEMENT  
SPILLWAY DETAILS

NO.	REVISION	DATE

Project Number:  
160101

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JUNE 2018

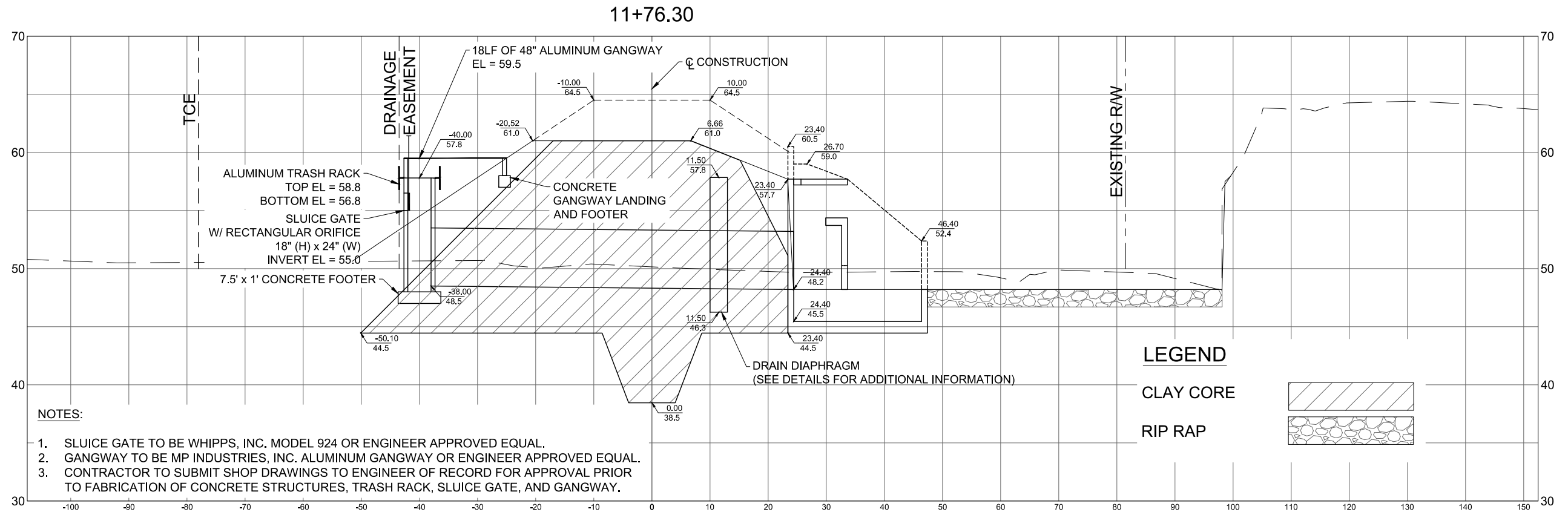
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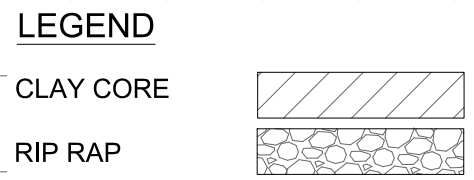
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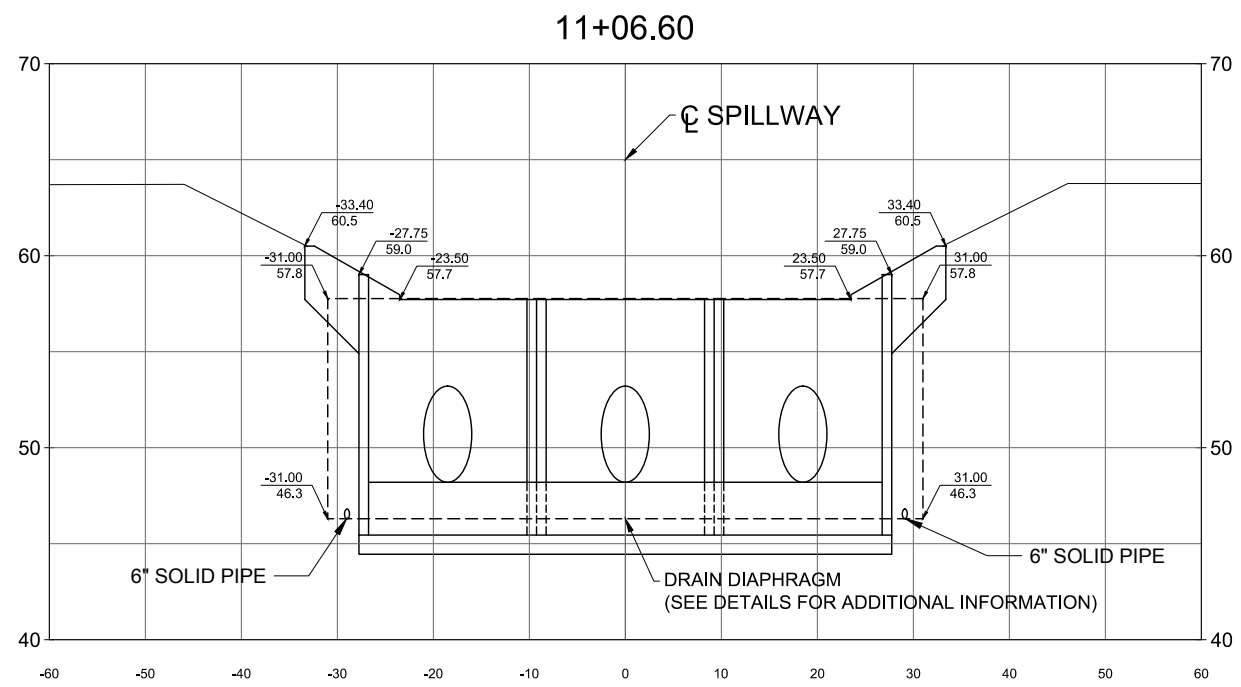


- NOTES:**
1. SLUICE GATE TO BE WHIPPS, INC. MODEL 924 OR ENGINEER APPROVED EQUAL.
  2. GANGWAY TO BE MP INDUSTRIES, INC. ALUMINUM GANGWAY OR ENGINEER APPROVED EQUAL.
  3. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION OF CONCRETE STRUCTURES, TRASH RACK, SLUICE GATE, AND GANGWAY.

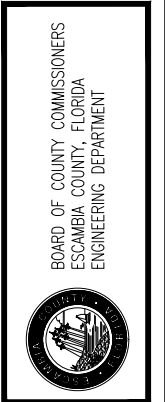


**SPILLWAY PROFILE**

11" X 17" SHEET  
 HORIZONTAL SCALE 1" = 20'  
 VERTICAL SCALE 1" = 10'



**SPILLWAY SECTION A-A**



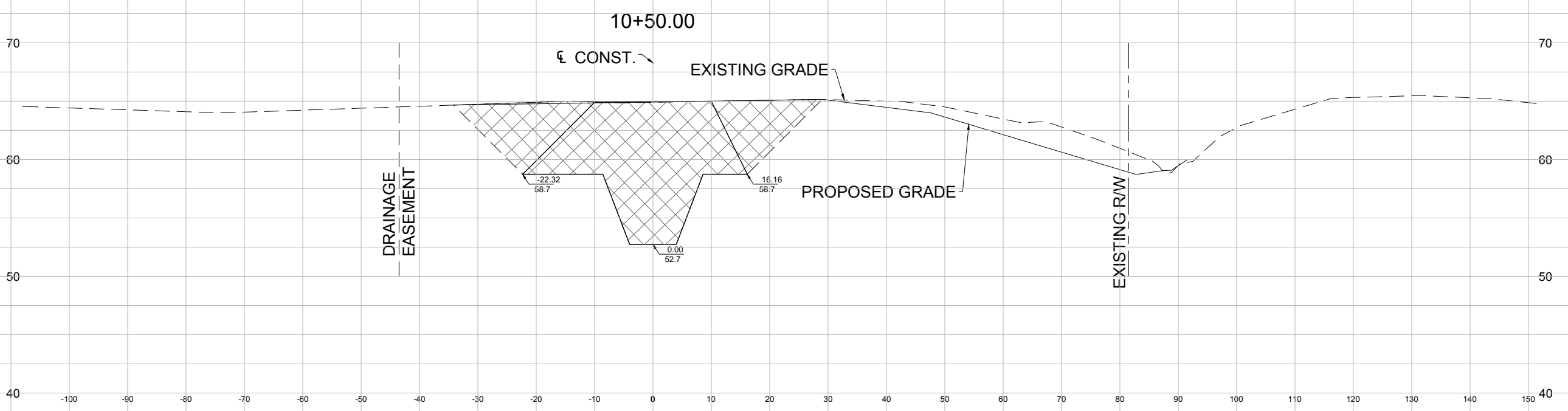
WILLOWBROOK LAKE  
 DAM REPLACEMENT  
 SPILLWAY DETAILS

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APPROXIMATE  
PLAN EXCAVATION AREA

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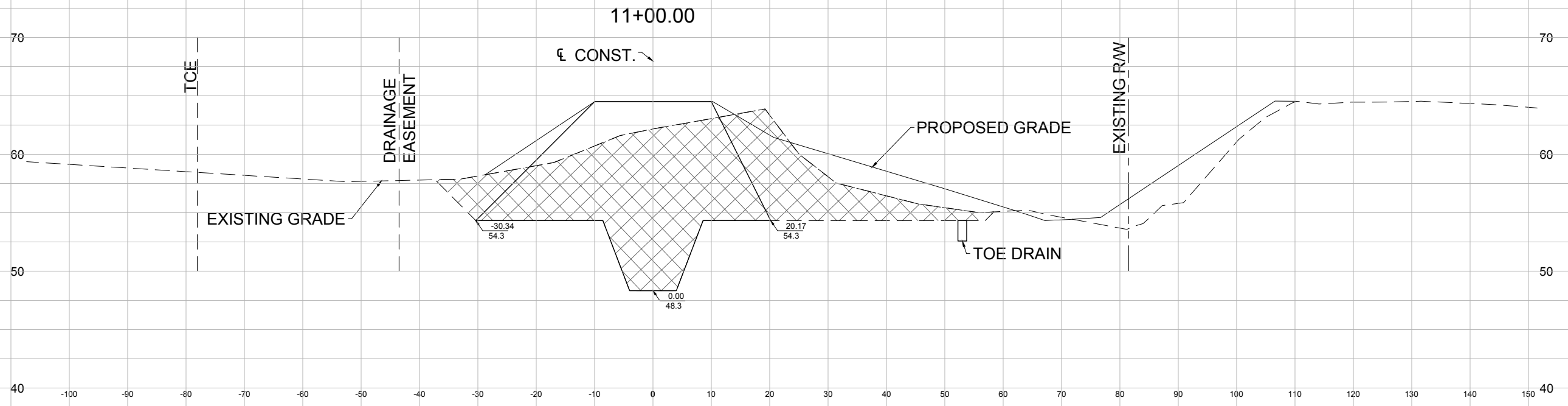
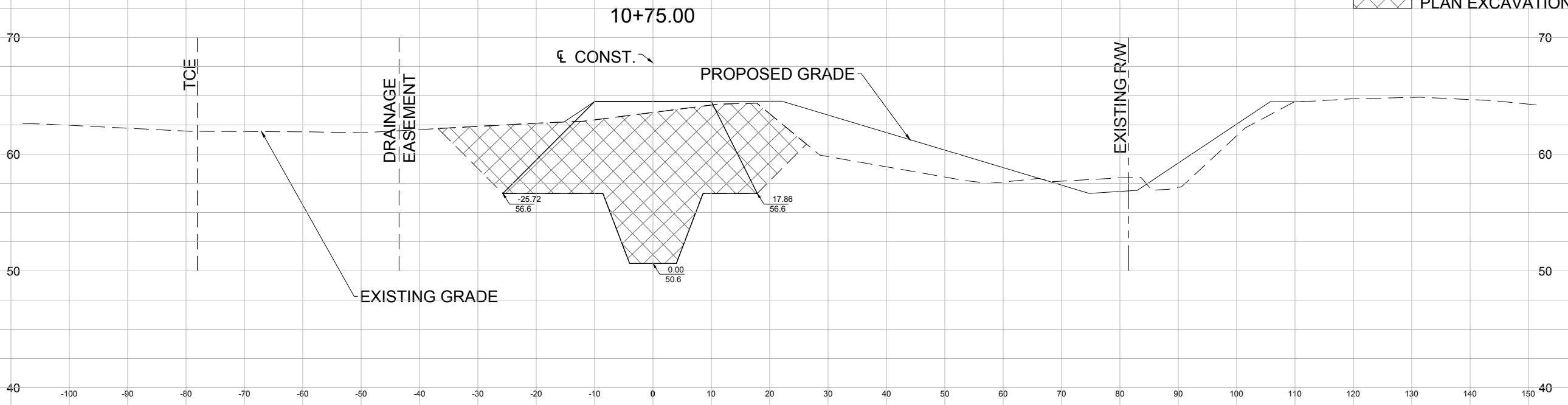
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REPLACEMENT PROJECT  
CROSS SECTION

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**11**

11" X 17" SHEET  
HORIZONTAL SCALE 1" = 20'  
VERTICAL SCALE 1" = 10'





11" X 17" SHEET  
 HORIZONTAL SCALE 1" = 20'  
 VERTICAL SCALE 1" = 10'

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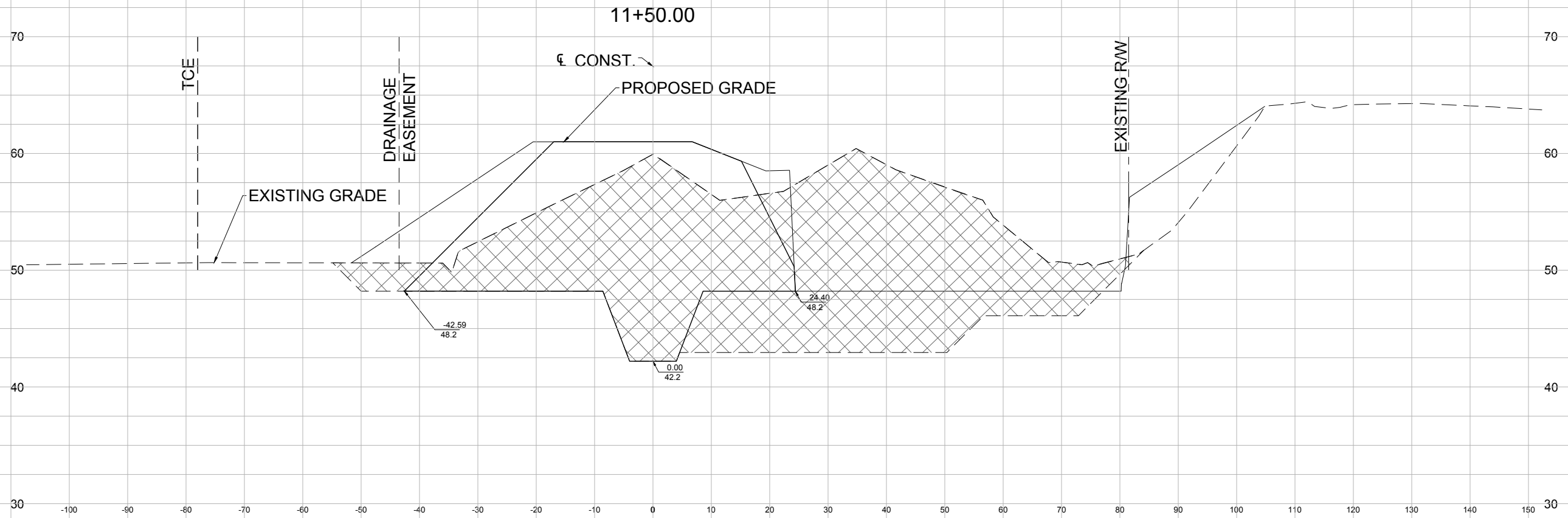
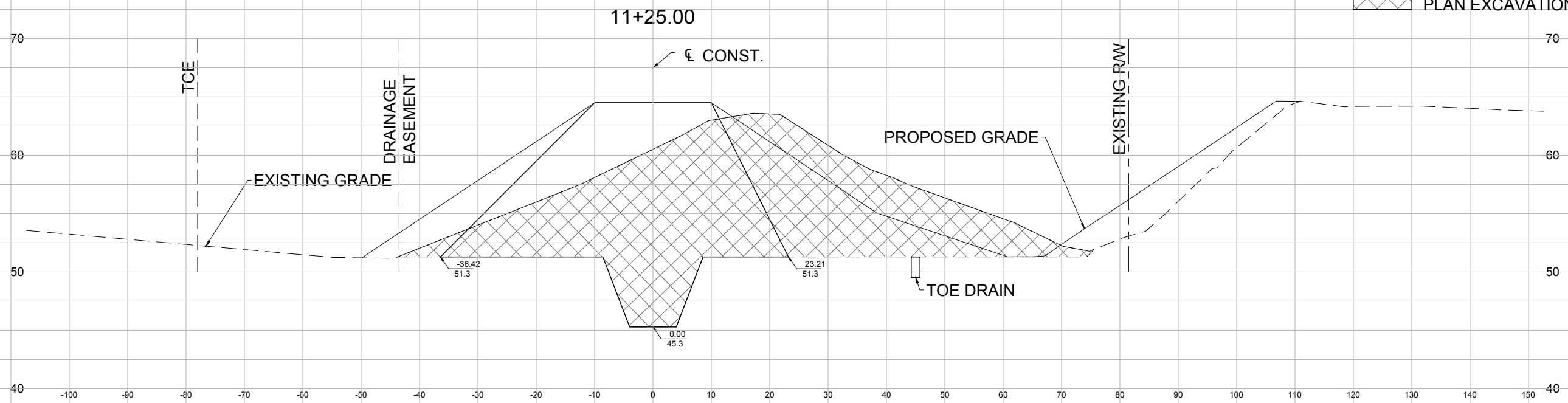
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 REPLACEMENT PROJECT  
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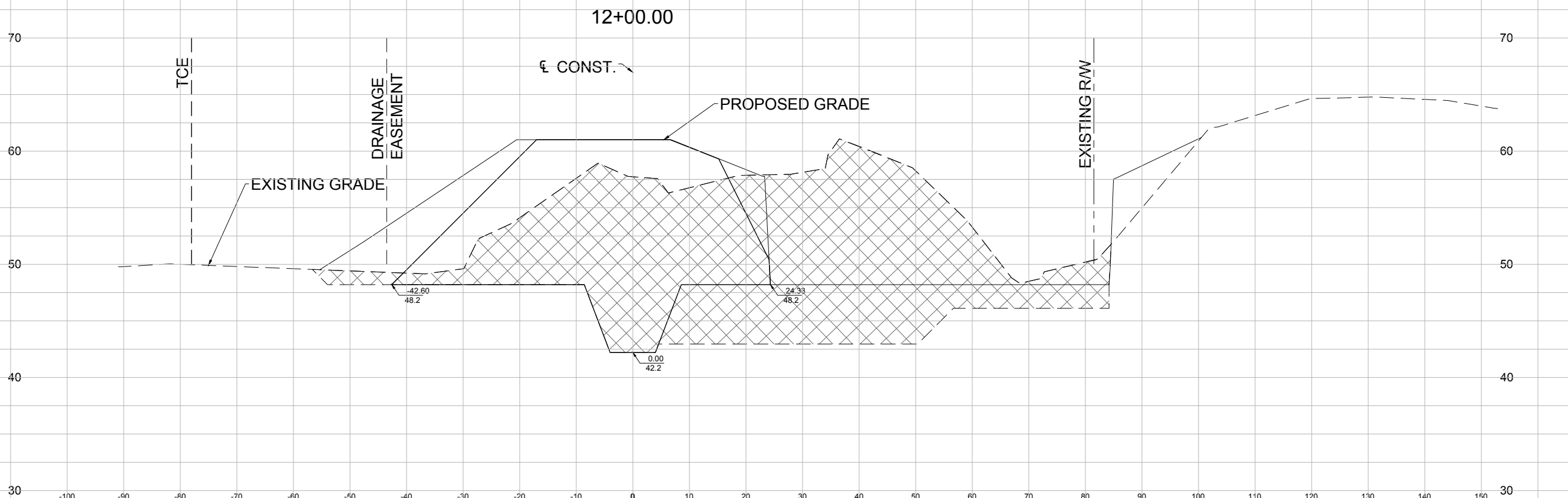
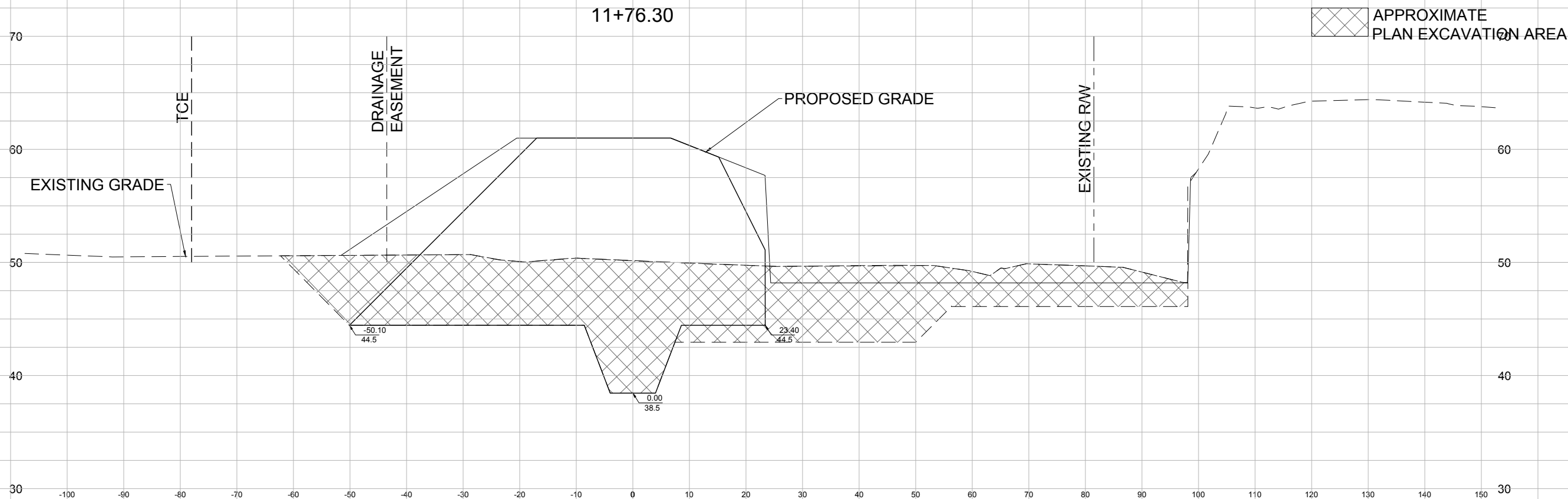
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 ESCAMBIA COUNTY, FLORIDA  
 ENGINEERING DEPARTMENT

WILLOWBROOK LAKE DAM  
 REPLACEMENT PROJECT  
 CROSS SECTION

NO.	REVISION	DATE

Project Number:  
 160101  
 Date:  
 JUNE 2018  
 Drawn By:  
 C.W.H.  
 Designed By:  
 F.E.A.  
 Checked By:  
 J.L.L.  
 Sheet:  
 13

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11" X 17" SHEET  
 HORIZONTAL SCALE 1" = 20'  
 VERTICAL SCALE 1" = 10'

**SIGMA**  
 CONSULTING  
 GROUP, INC.

3298 SUMMIT BOULEVARD, SUITE 32  
 PENSACOLA, FLORIDA 32503  
 PHONE: (850) 332-7912  
 CERTIFICATE OF AUTHORIZATION #26889

BOARD OF COUNTY  
 COMMISSIONERS  
 ESCAMBIA COUNTY, FLORIDA  
 ENGINEERING DEPARTMENT

WILLOWBROOK LAKE DAM  
 REPLACEMENT PROJECT  
 CROSS SECTION

NO.	REVISION	DATE

Project Number:  
160101

Date:  
JUNE 2018

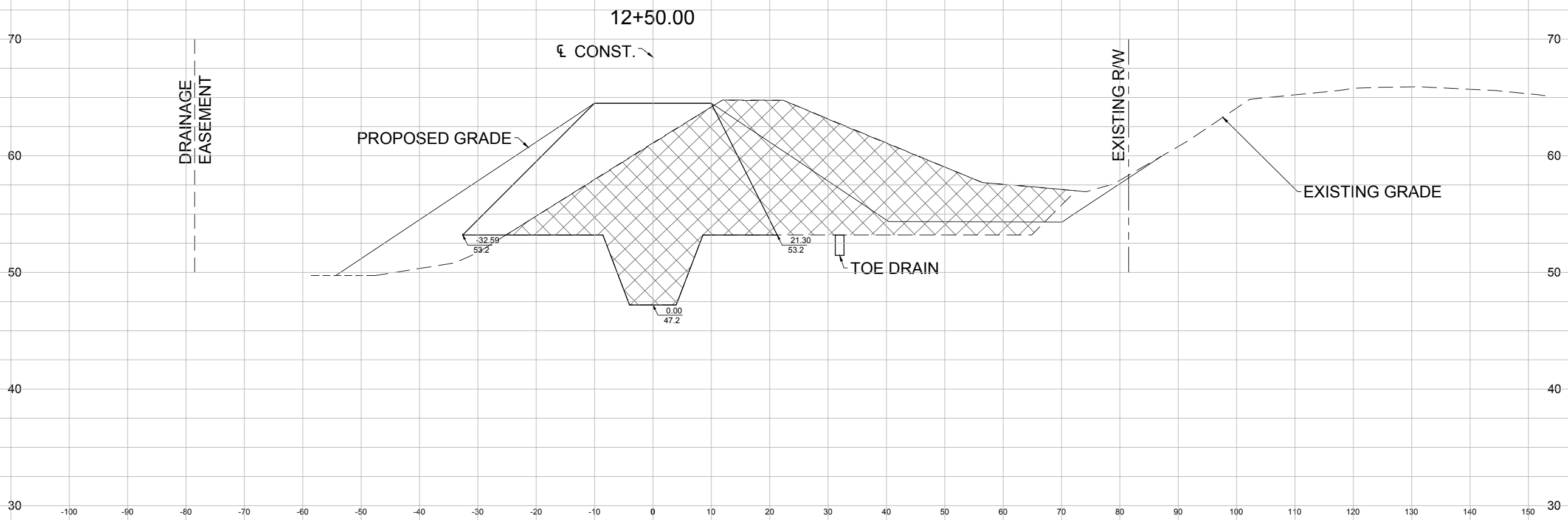
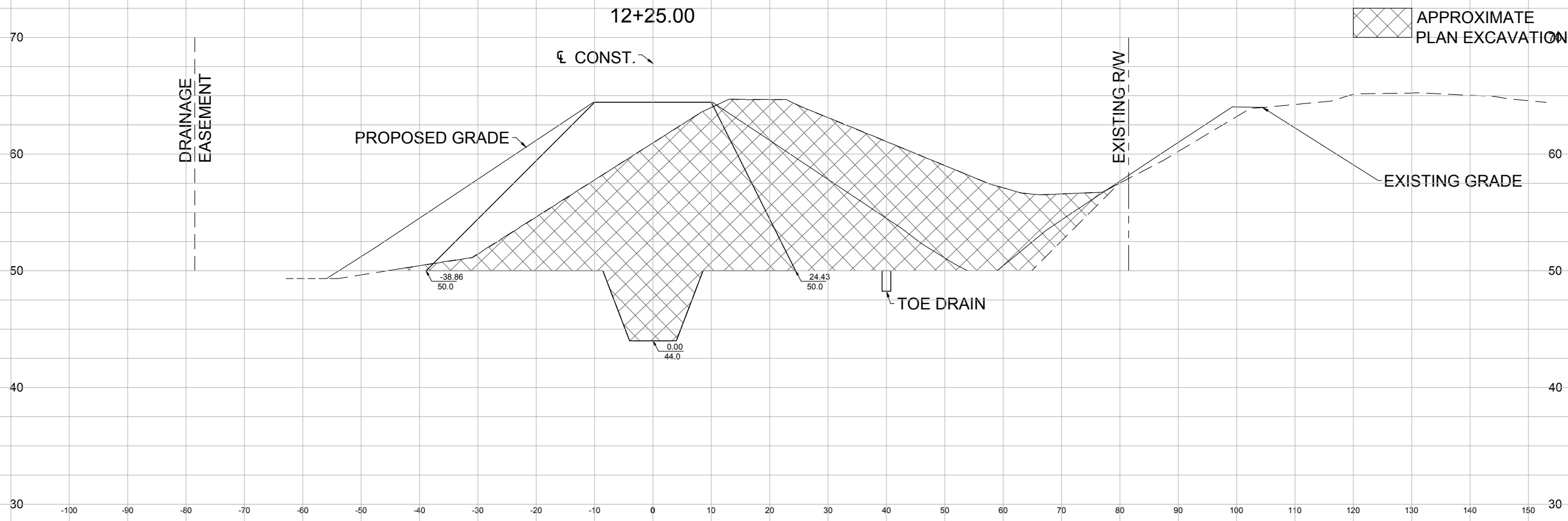
Drawn By:  
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Designed By:  
F.E.A.

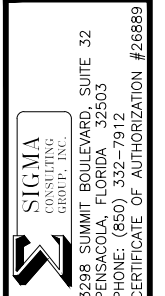
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J.L.L.

Sheet:  
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 HORIZONTAL SCALE 1" = 20'  
 VERTICAL SCALE 1" = 10'



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 ESCAMBIA COUNTY, FLORIDA  
 ENGINEERING DEPARTMENT

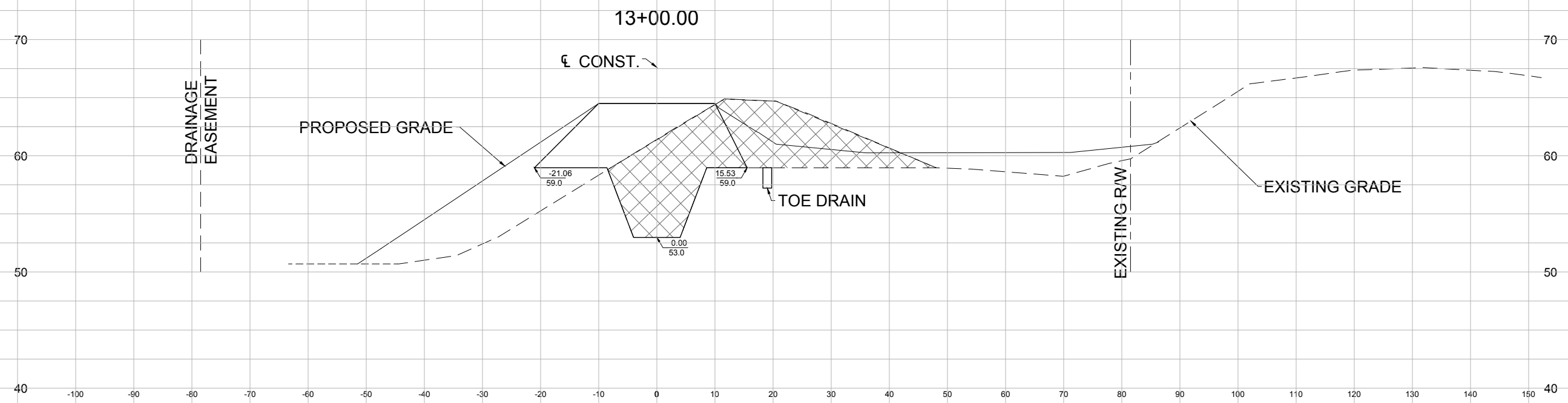
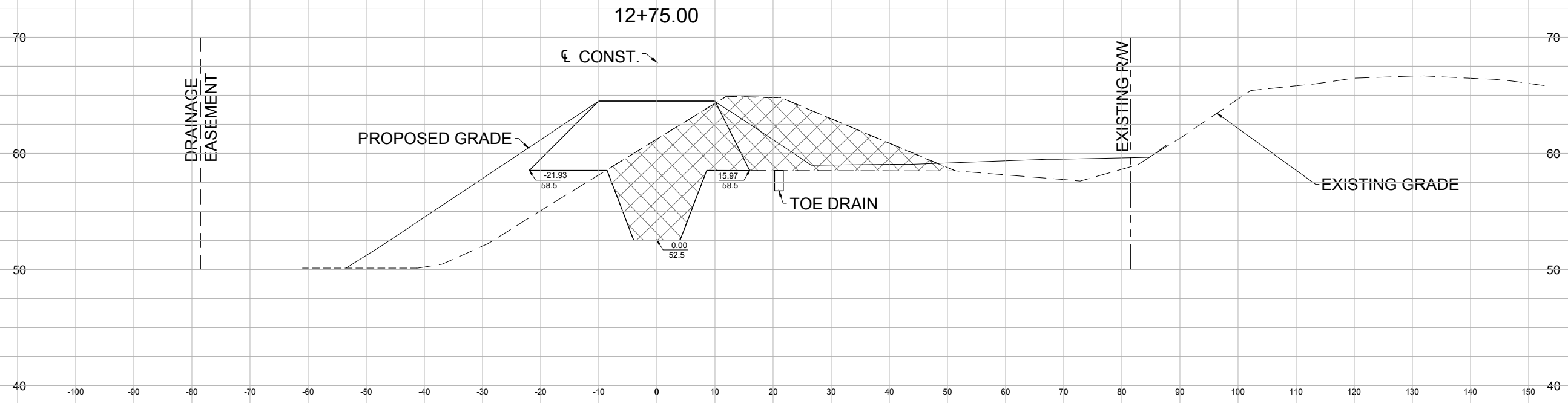
WILLOWBROOK LAKE DAM  
 REPLACEMENT PROJECT  
 CROSS SECTION

NO.	REVISION	DATE

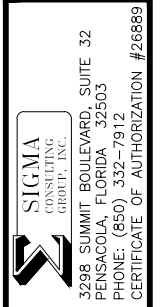
Project Number: 160101  
 Date: JUNE 2018  
 Drawn By: C.W.H.  
 Designed By: F.E.A.  
 Checked By: J.L.L.  
 Sheet: 15

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 VERTICAL SCALE 1" = 10'

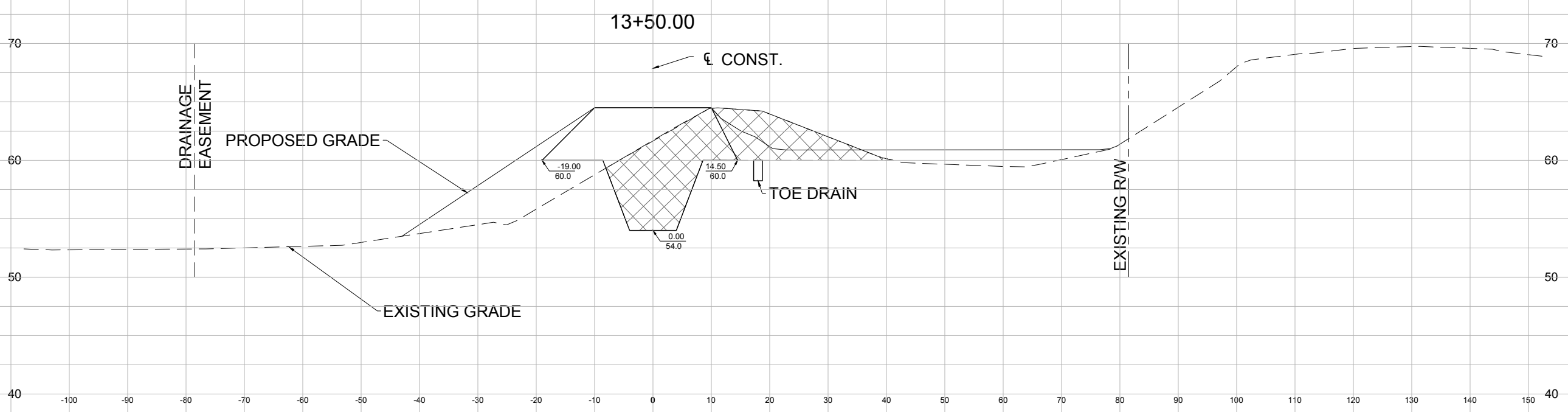
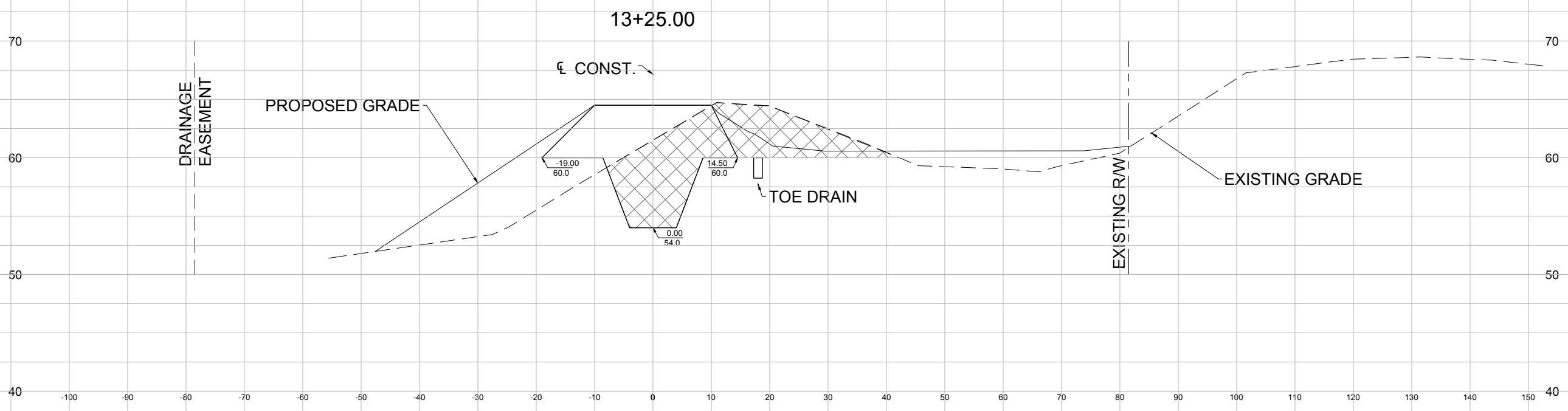


WILLOWBROOK LAKE DAM  
 REPLACEMENT PROJECT  
 CROSS SECTION

NO.	REVISION	DATE

Project Number: 160101  
 Date: JUNE 2018  
 Drawn By: C.W.H.  
 Designed By: F.E.A.  
 Checked By: J.L.L.  
 Sheet: 16

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11" X 17" SHEET  
 HORIZONTAL SCALE 1" = 20'  
 VERTICAL SCALE 1" = 10'

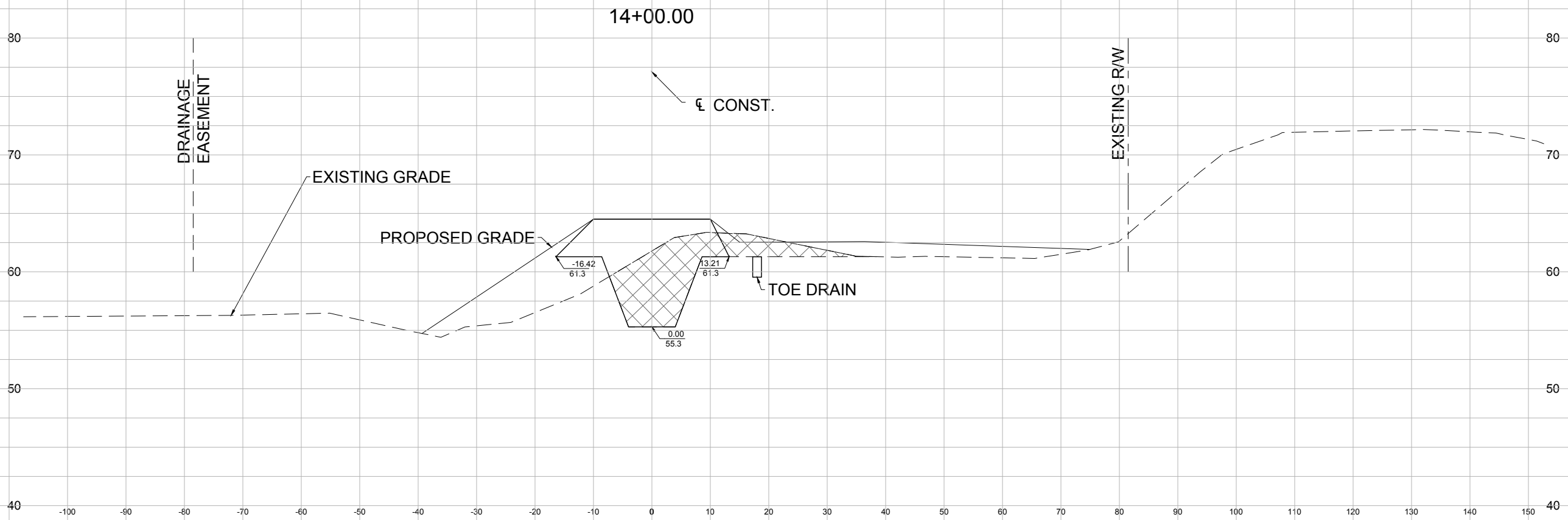
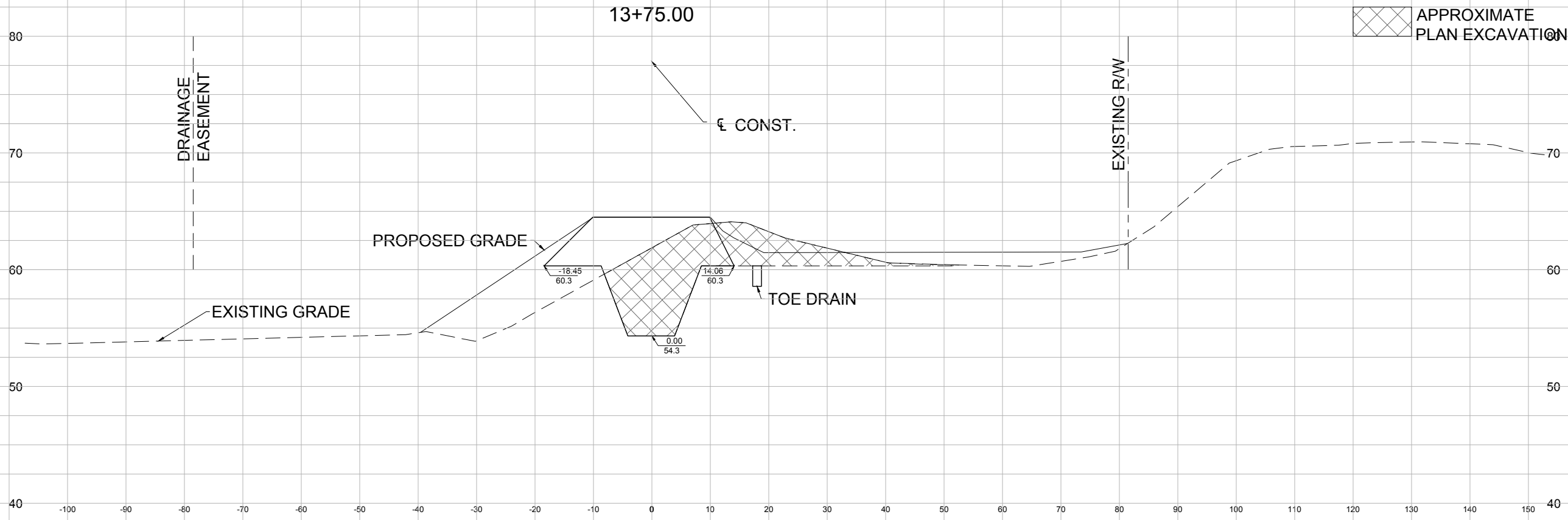
**SIGMA**  
 CONSULTING  
 GROUP, INC.  
 3298 SUMMIT BOULEVARD, SUITE 32  
 PENSACOLA, FLORIDA 32503  
 PHONE: (850) 332-7912  
 CERTIFICATE OF AUTHORIZATION #26889

BOARD OF COUNTY  
 COMMISSIONERS  
 ESCAMBIA COUNTY, FLORIDA  
 ENGINEERING DEPARTMENT

WILLOWBROOK LAKE DAM  
 REPLACEMENT PROJECT  
 CROSS SECTION

NO.	REVISION	DATE

Project Number:  
 160101  
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 C.W.H.  
 Designed By:  
 F.E.A.  
 Checked By:  
 J.L.L.  
 Sheet:  
 17



11" X 17" SHEET  
 HORIZONTAL SCALE 1" = 20'  
 VERTICAL SCALE 1" = 10'

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BOARD OF COUNTY  
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 ESCAMBIA COUNTY, FLORIDA  
 ENGINEERING DEPARTMENT

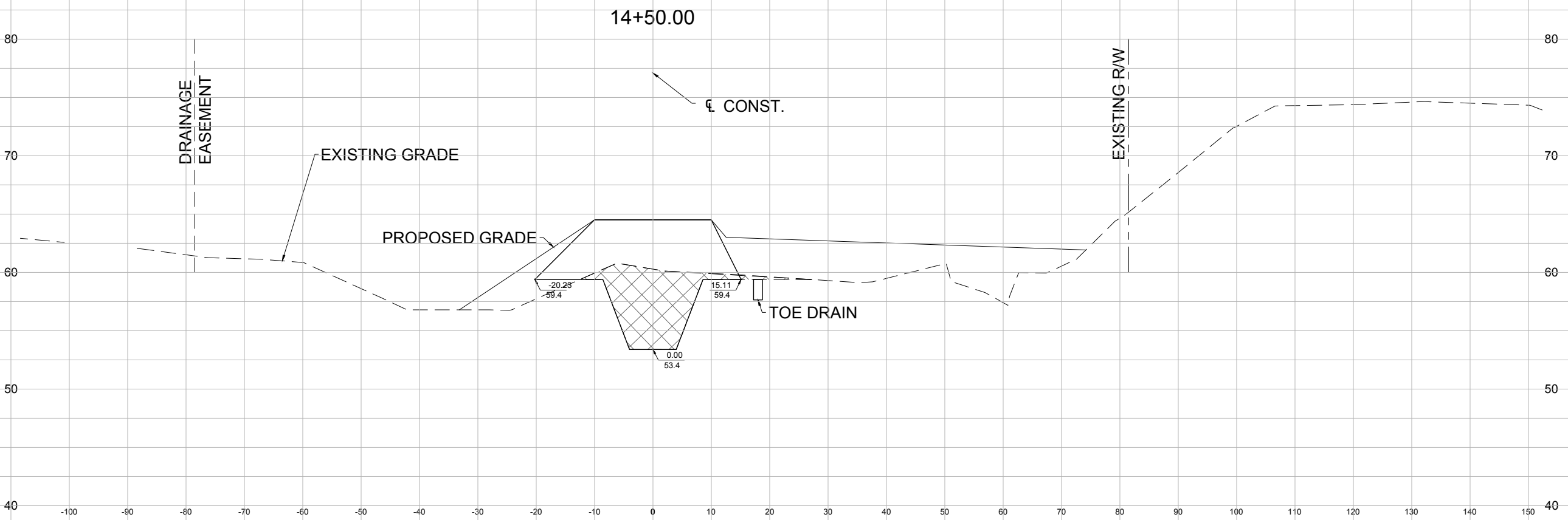
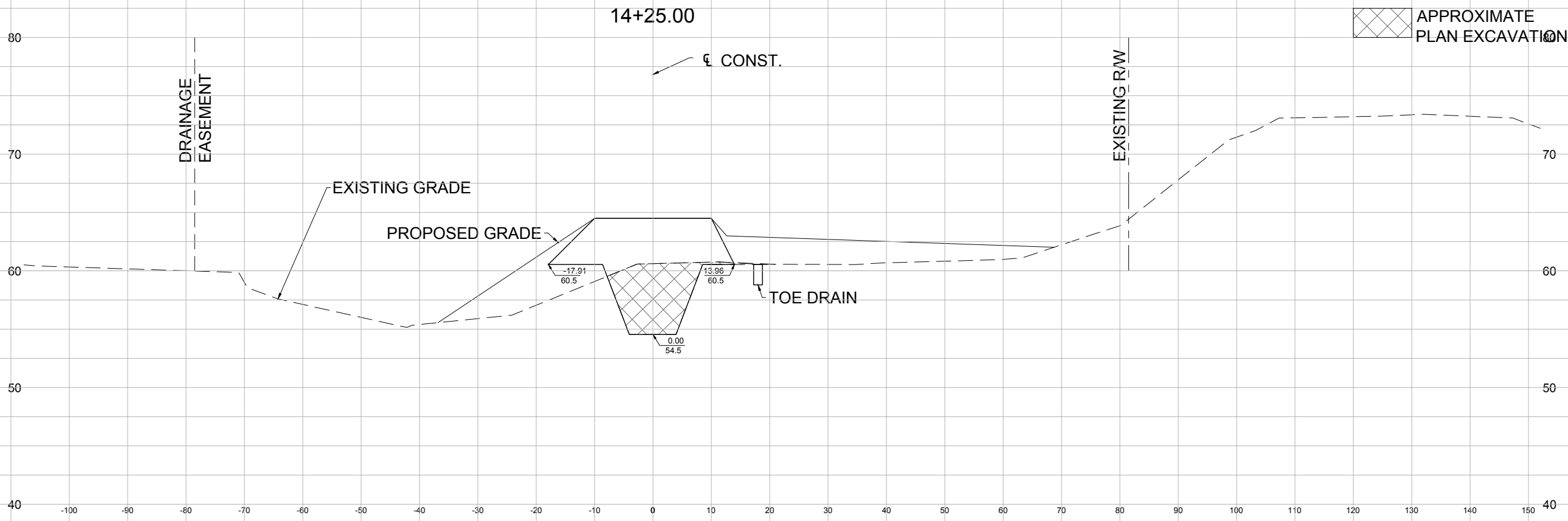
WILLOWBROOK LAKE DAM  
 REPLACEMENT PROJECT  
 CROSS SECTION

NO.	REVISION	DATE

Project Number:  
 160101  
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 JUNE 2018  
 Drawn By:  
 C.W.H.  
 Designed By:  
 F.E.A.  
 Checked By:  
 J.L.L.  
 Sheet:  
 18

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APPROXIMATE  
PLAN EXCAVATION AREA

11" X 17" SHEET  
HORIZONTAL SCALE 1" = 20'  
VERTICAL SCALE 1" = 10'

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CONSULTING  
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BOARD OF COUNTY  
COMMISSIONERS  
ESCAMBIA COUNTY, FLORIDA  
ENGINEERING DEPARTMENT

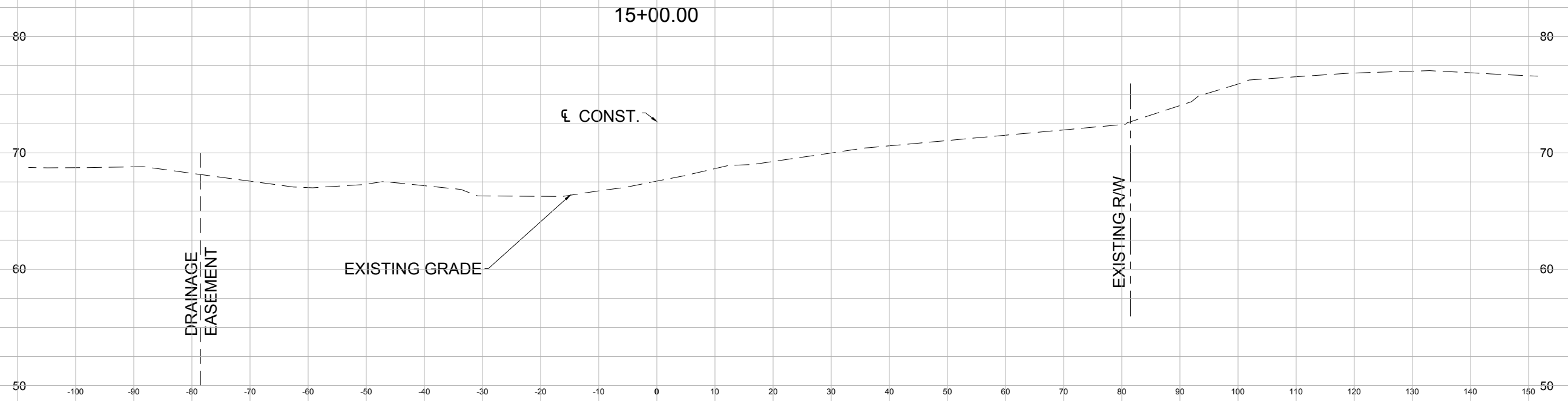
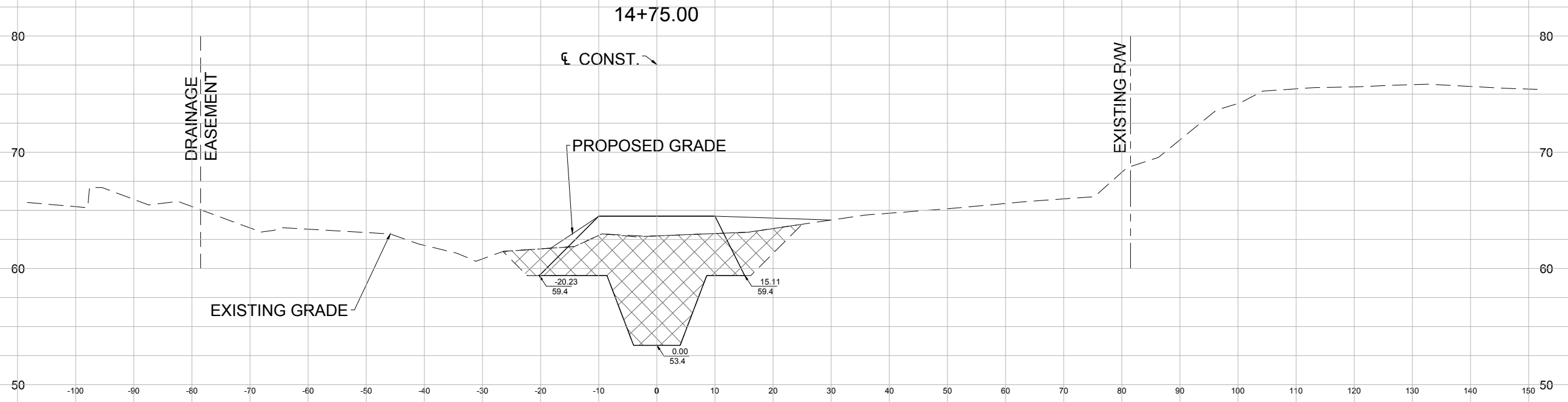
WILLOWBROOK LAKE DAM  
REPLACEMENT PROJECT  
CROSS SECTION

NO.	REVISION	DATE

Project Number:  
160101  
Date:  
JUNE 2018  
Drawn By:  
C.W.H.  
Designed By:  
F.E.A.  
Checked By:  
J.L.L.  
Sheet:  
**19**

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APPROXIMATE  
PLAN EXCAVATION AREA



11" X 17" SHEET  
 HORIZONTAL SCALE 1" = 20'  
 VERTICAL SCALE 1" = 10'

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 CONSULTING  
 GROUP, INC.  
 3298 SUMMIT BOULEVARD, SUITE 32  
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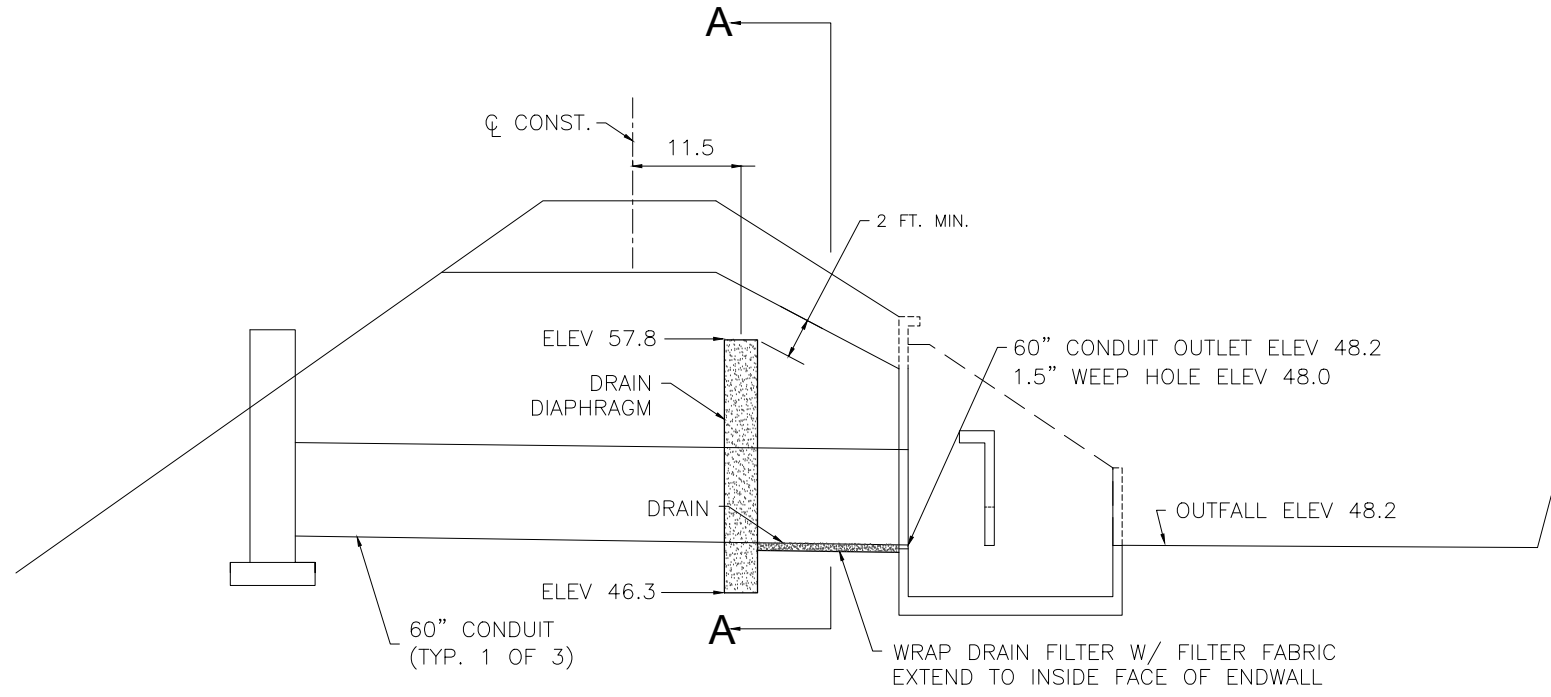
BOARD OF COUNTY  
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 ESCAMBIA COUNTY, FLORIDA  
 ENGINEERING DEPARTMENT

WILLOWBROOK LAKE DAM  
 REPLACEMENT PROJECT  
 CROSS SECTION

NO.	REVISION	DATE

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F.E.A.  
 Checked By:  
J.L.L.  
 Sheet:  
20

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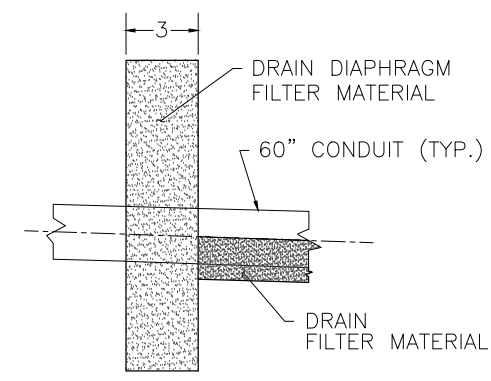


**PROFILE ALONG CENTERLINE SPILLWAY**  
N.T.S.

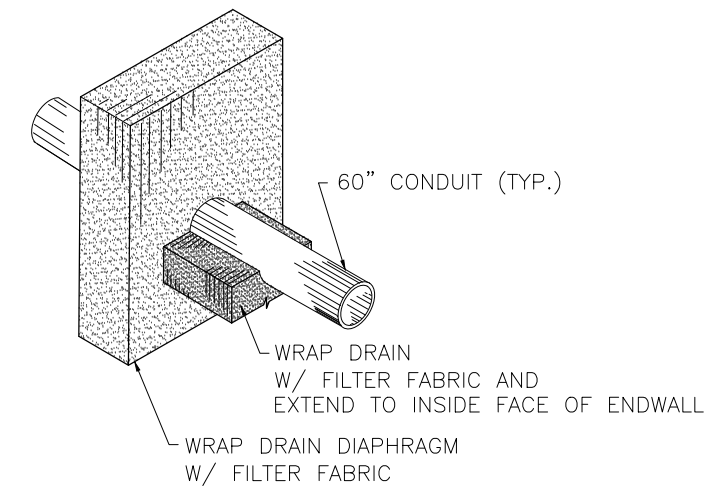
FILTER MATERIAL GRADATION

SIEVE SIZE	% PASSING BY WEIGHT
3/8 IN.	100
NO. 4	95-100
NO. 16	45-85
NO. 50	5-30
NO. 100	0-10

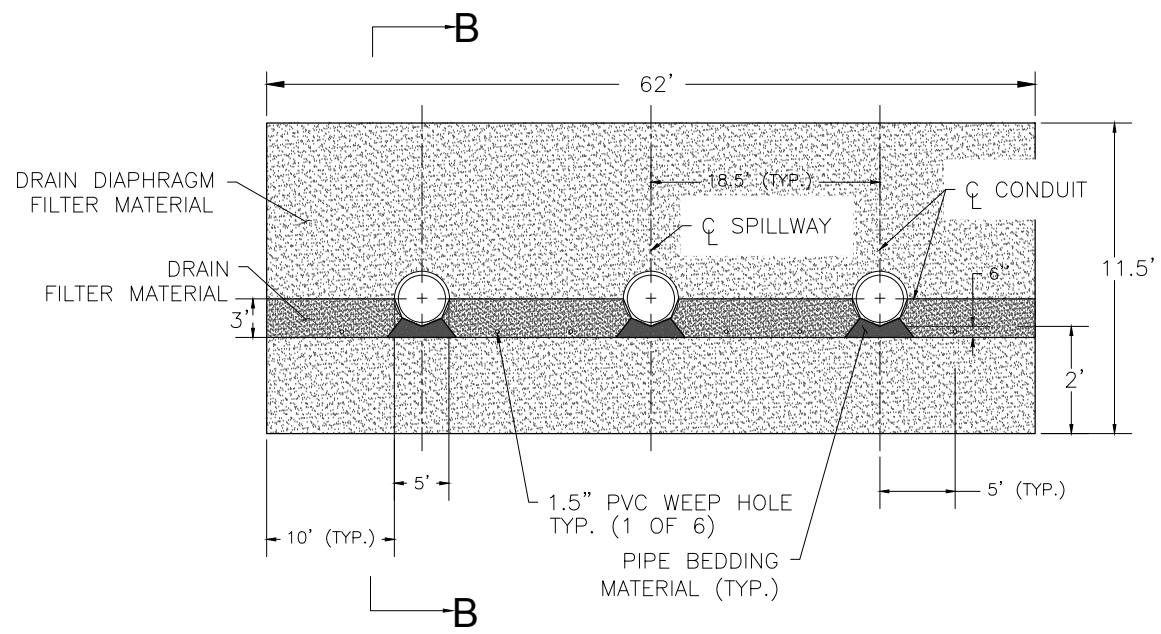
ASTM, C-33 FINE AGGREGATE



**SECTION B-B**  
N.T.S.



**PARTIAL ISOMETRIC**  
N.T.S.



**SECTION A-A**  
N.T.S.

**CONSTRUCTION NOTES:**

1. THE FILTER MATERIAL SHALL BE PLACED IN 12" LIFTS AND EACH LIFT SATURATED UNIFORMLY WITH APPROXIMATELY 1.2 GALLONS OF WATER PER CUBIC FOOT OF LOOSE FILTER MATERIAL. IN LIEU OF WATER APPLICATION, THE FILTER MATERIAL SHALL BE PLACED IN 9" LIFTS AND COMPACTED WITH ONE PASS OF A PLATE VIBRATOR.
2. DRAIN DIAPHRAGM IS DESIGNED PER THE GUIDELINES IN USDA/NRCS PART 628 DAMS NATIONAL ENGINEERING HANDBOOK CHAPTER 45 FILTER DIAPHRAGMS.

**DETAIL NOTES:**

1. FILTER SAND SHALL MEET THE REQUIREMENTS OF ASTM C33 AND THE ITEMS LISTED IN DETAIL NOTE #2.
2. CONTRACTOR SHALL PERFORM THE FOLLOWING TESTS ON THE FILTER SAND PRIOR TO ACCEPTANCE AS A SUITABLE MATERIAL:
  - a. VAUGHN AND SOARES TEST
  - b. SAND EQUIVALENT TEST (ASTM D2419)
3. CONTRACTOR SHALL SUBMIT TEST DATA TO ESCAMBIA COUNTY FOR REVIEW COMMENTS.
4. CONTRACTOR MUST RECEIVE ACCEPTANCE FROM ESCAMBIA COUNTY FOR PROPOSED SAND FILTER MEDIA PRIOR TO CONSTRUCTION OF THE DRAIN DIAPHRAGM.

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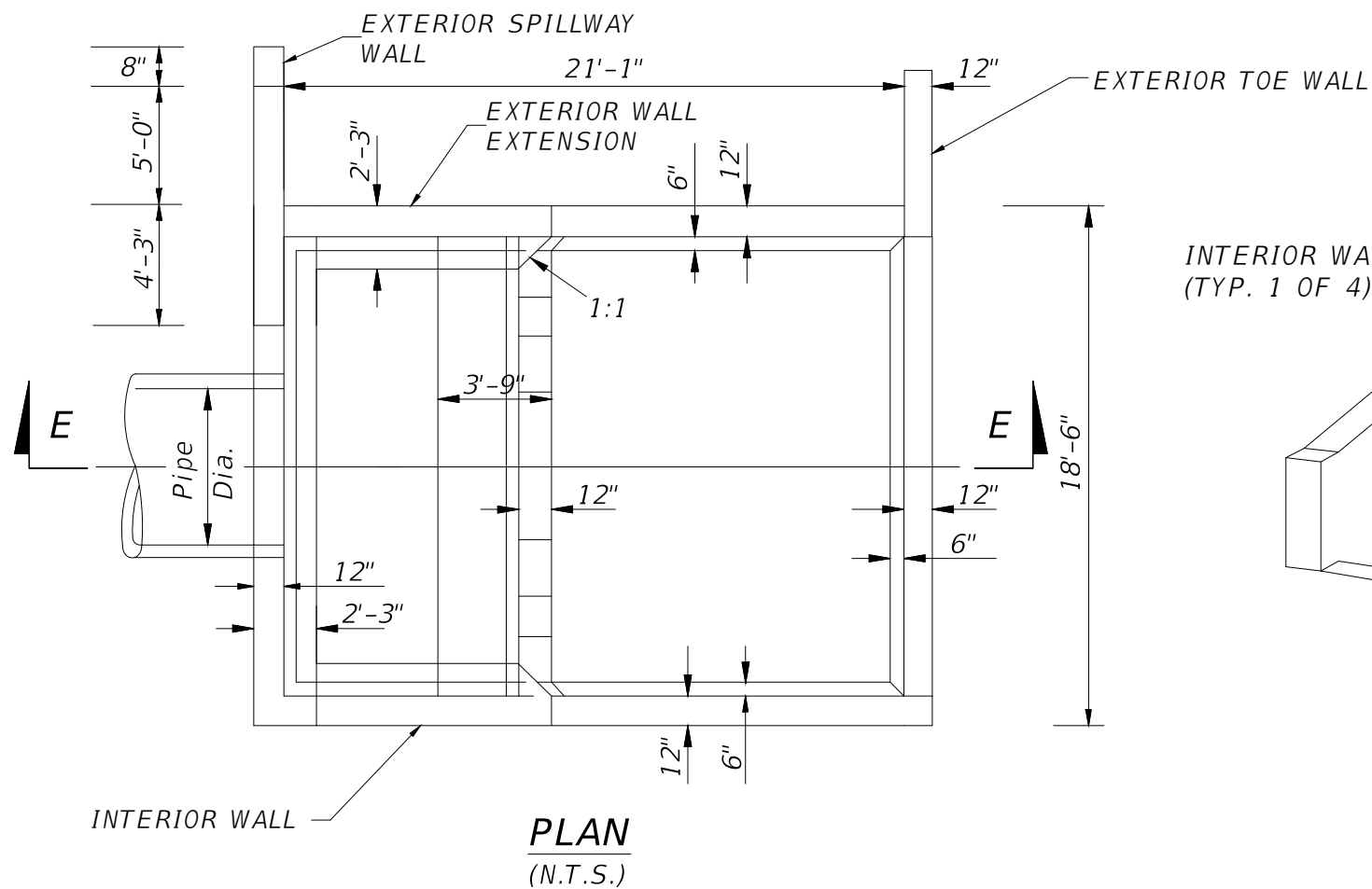
**SIGMA**  
ENGINEERING GROUP, INC.  
3295 SUMMIT BOULEVARD, SUITE 32  
PENSACOLA, FLORIDA 32503  
PHONE: (850) 332-7912  
CERTIFICATE OF AUTHORIZATION #26889

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ESCAMBIA COUNTY, FLORIDA  
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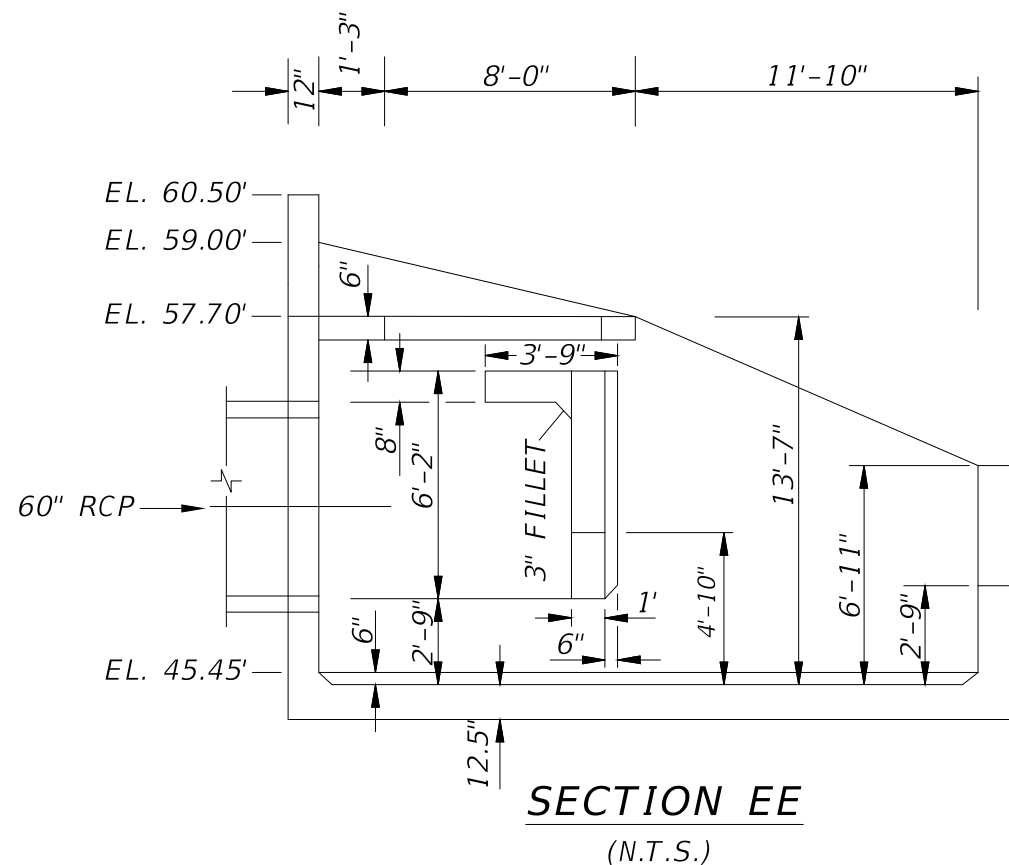
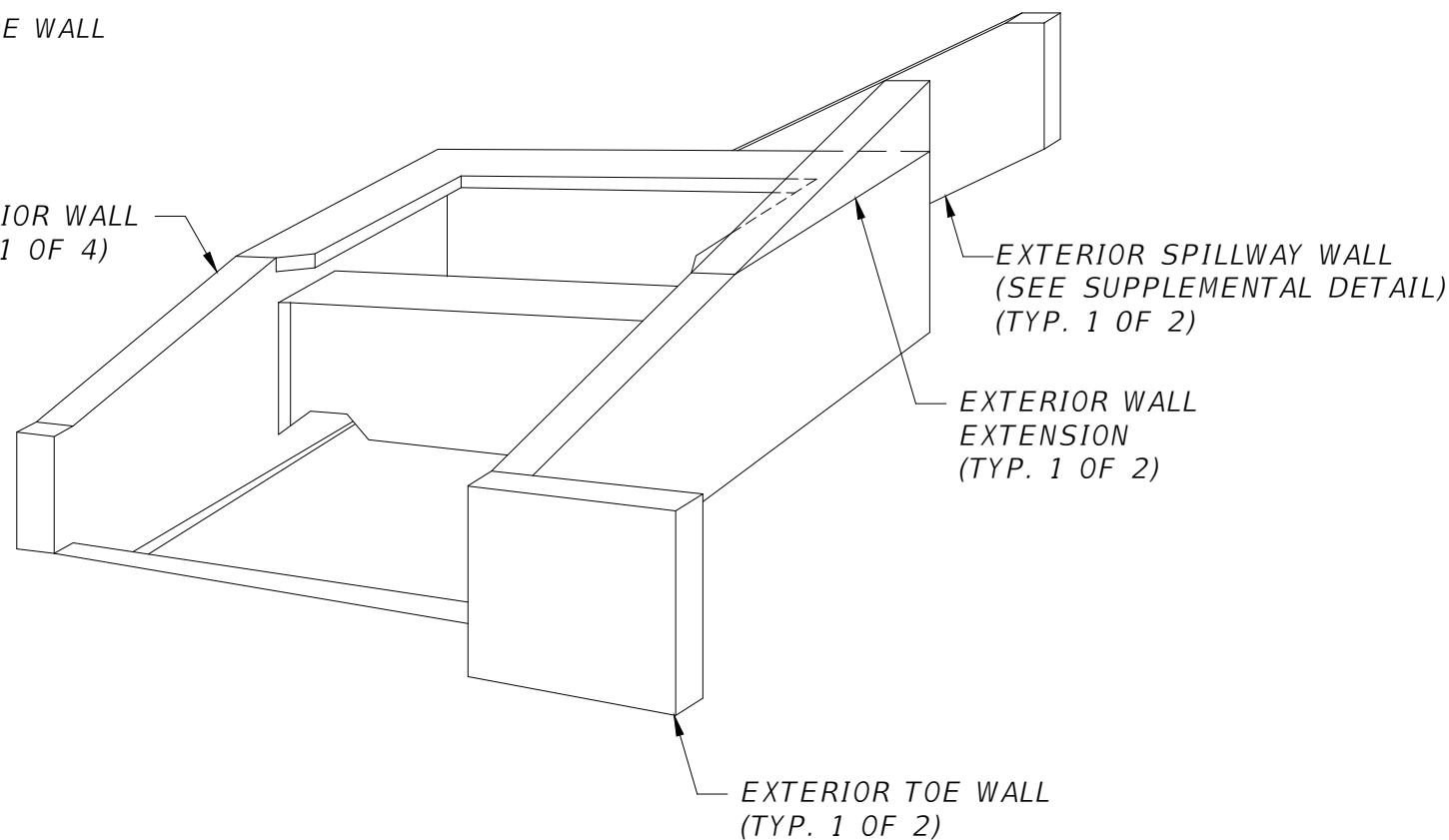
WILLOWBROOK LAKE  
DAM REPLACEMENT  
DRAIN DIAPHRAGM DETAIL

NO.	REVISION	DATE

Project Number:  
160101  
Date:  
JUNE 2018  
Drawn By:  
C.W.H.  
Designed By:  
F.E.A.  
Checked By:  
J.L.L.  
Sheet:  
**21**



INTERIOR WALL  
(TYP. 1 OF 4)



### GENERAL NOTES

1. Chamfer all exposed edges  $\frac{3}{4}$ ".
2. Concrete shall be Class I, except ASTM C478 (4000 psi) concrete may be substituted for precast items manufactured in plants meeting the requirements of Section 449 of the Specifications.
3. Reinforcing steel shall have 2" min. cover.

### PROJECT SPECIFIC NOTES

\* DIMENSIONS ARE SPECIFIC TO THIS PROJECT AND VARY FROM FDOT STANDARD INDEX NO. 264.

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ENGINEERING  
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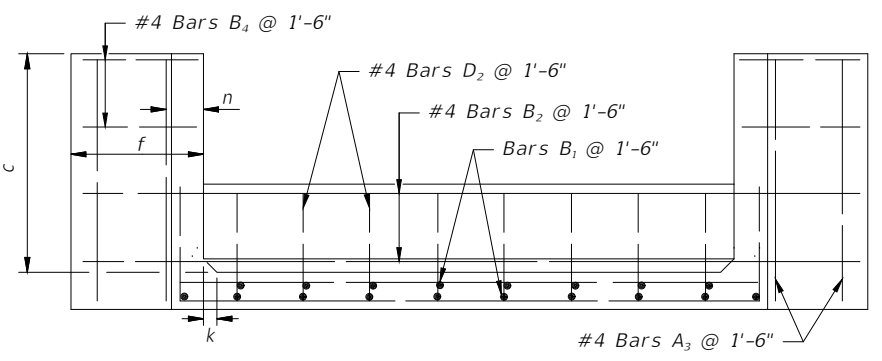
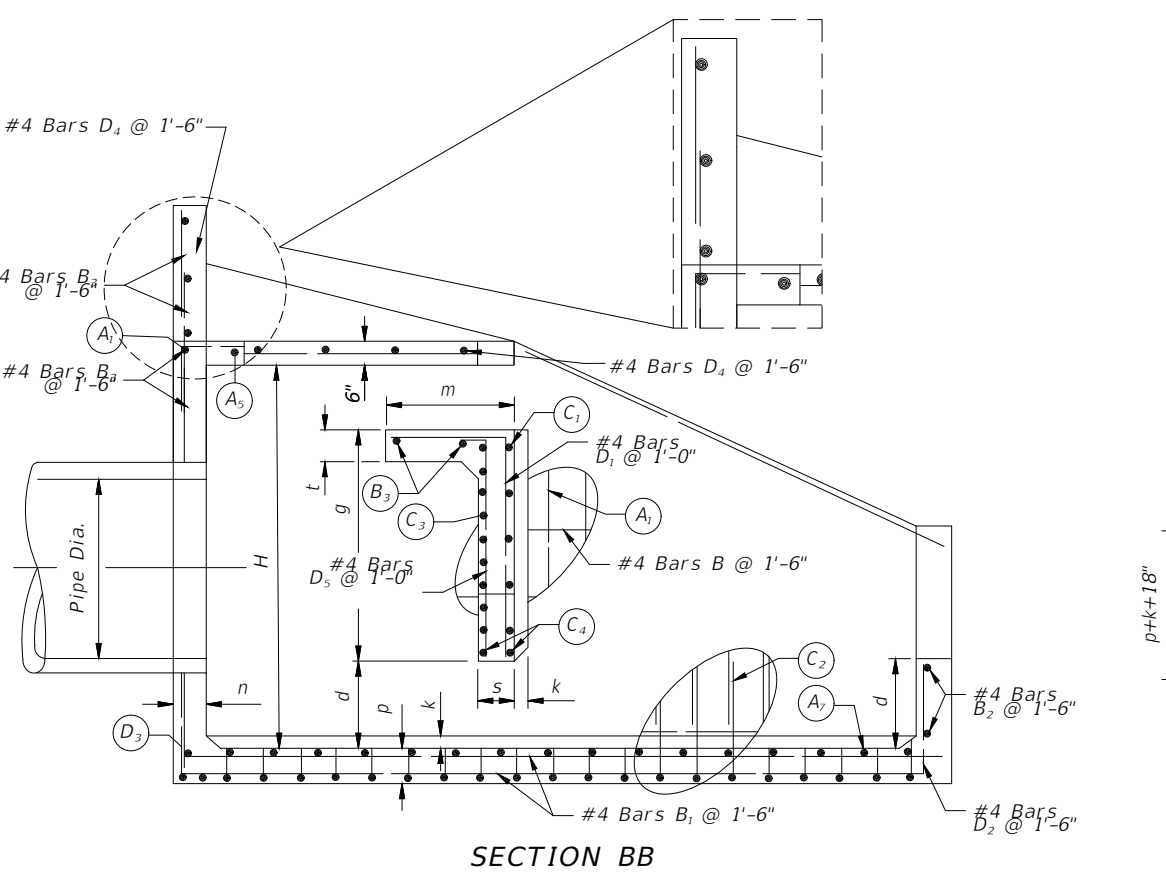
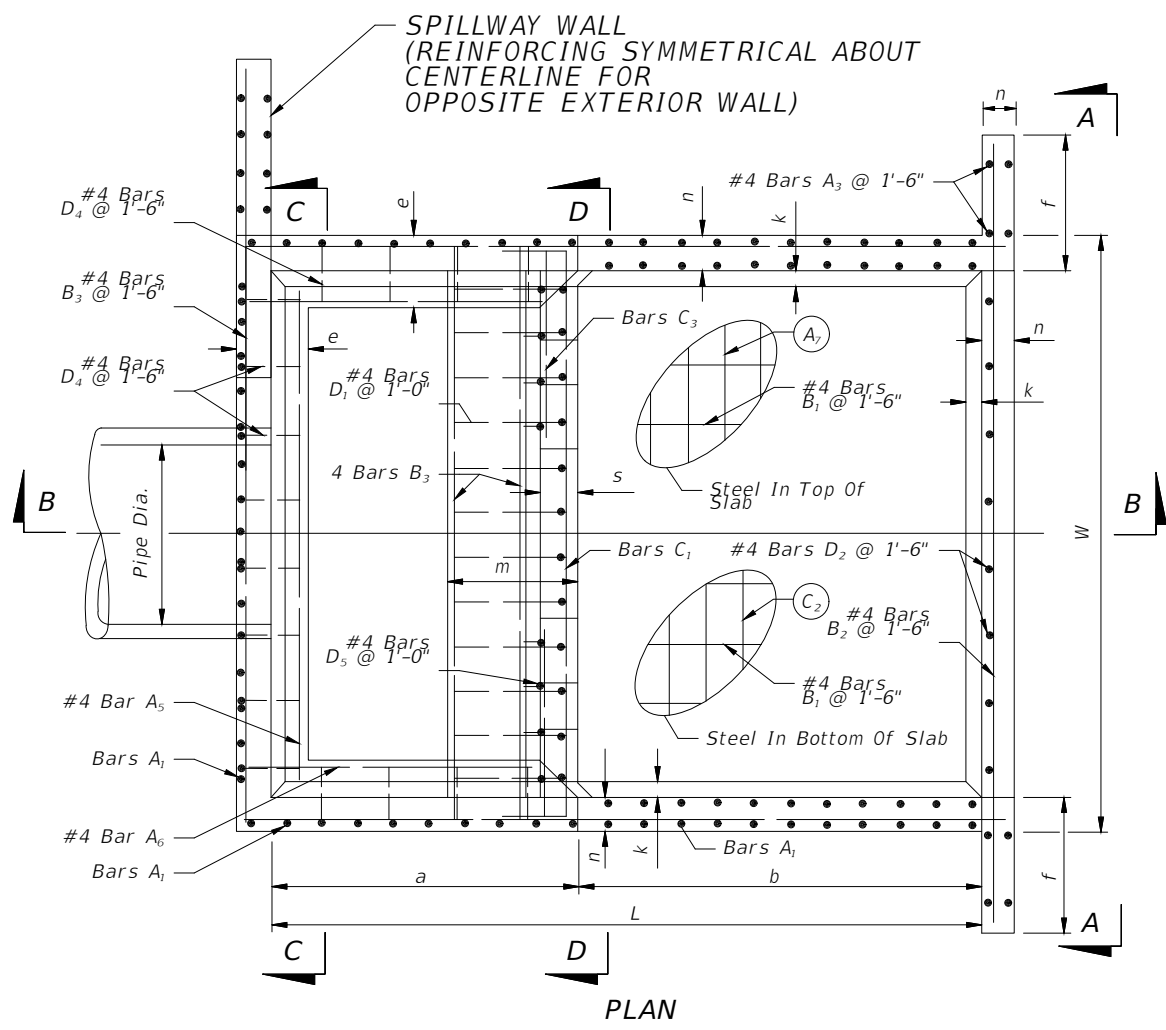
BOARD OF COUNTY COMMISSIONERS  
ESCAMBA COUNTY, FLORIDA  
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WILLOWBROOK LAKE  
DAM REPLACEMENT  
U-WALL DETAIL

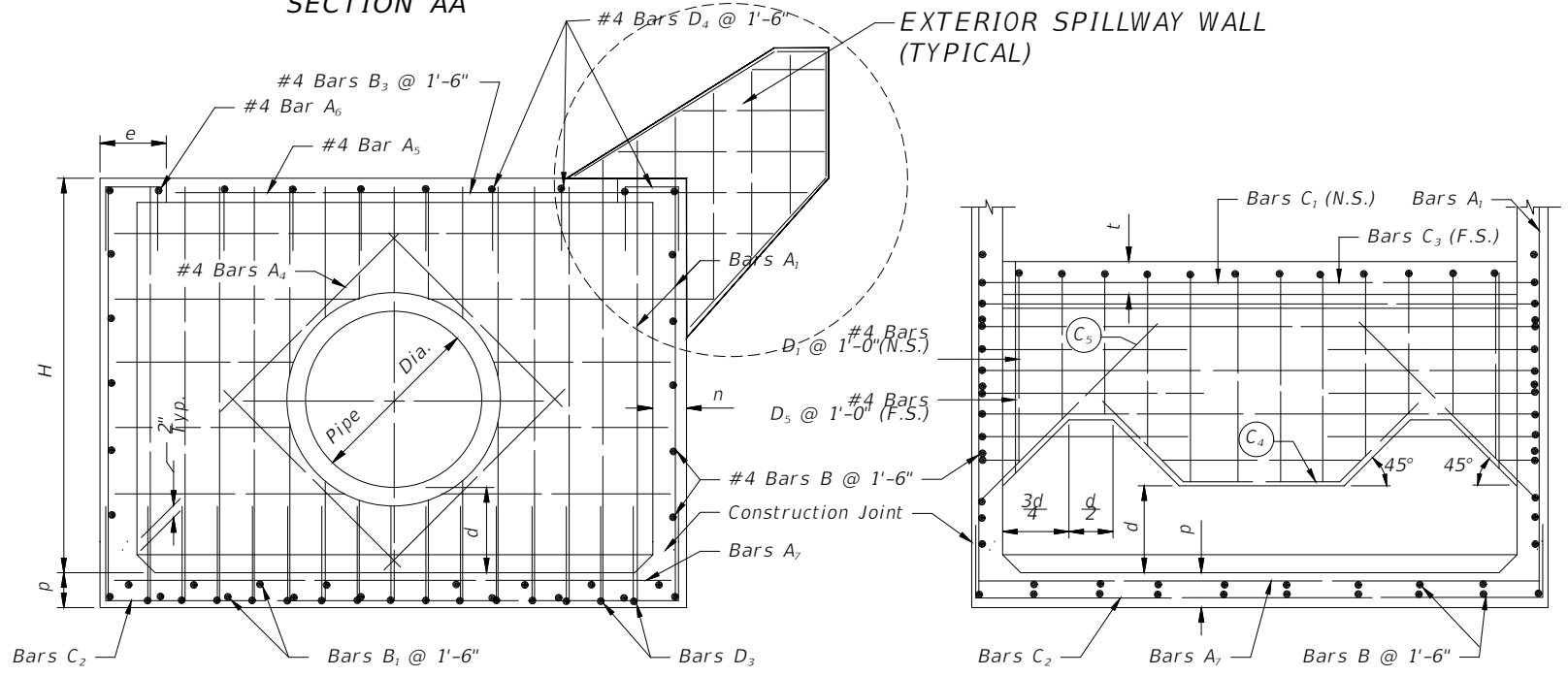
NO.	REVISION	DATE

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160101  
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JUNE 2018  
Drawn By:  
C.W.H.  
Designed By:  
F.E.A.  
Checked By:  
J.L.L.  
Sheet:  
**22**

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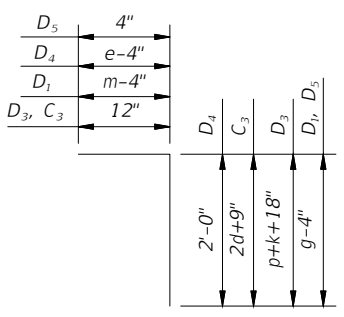


SECTION AA

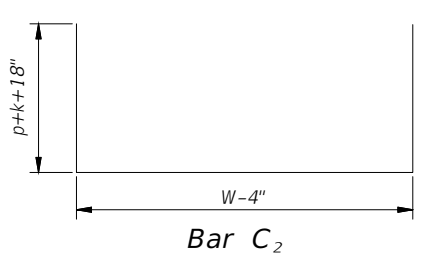


SECTION CC

SECTION DD



Bars: C3, D1, D3, D4, D5



Bar C2

Note: All bar dimensions are out to out.

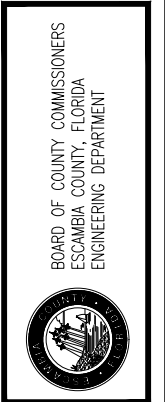
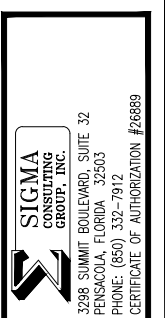
BENDING DIAGM

Pipe Size	A1		A2		C1		C2		C3		D3	
	Size (No.)	Spacing (Ft.-In.)	Size (No.)	Spacing (Ft.-In.)	Size (No.)	Spacing (Ft.-In.)	Size (No.)	Spacing (Ft.-In.)	Size (No.)	Spacing (Ft.-In.)	Size (No.)	Spacing (Ft.-In.)
MODIFIED 72"	6	0-7 1/2	5	0-10	7	0-10	6	0-7 1/2	7	0-5	6	0-7 1/2

Note: Bars A2, A3, A4, A5, A6, B1, B2, B3, B4, B5 are straight bars.

Pipe Size	Dia. (in)	Area (SF)	O (Max) (cfs)	Dimensions															
				Feet - Inches										Inches					
				W	H	L	a	b	c	d	e	f	g	m	n	p	s	t	k
60	28.27	339		18-6	11-9	21-1	9-3	11-10	6-11	2-9	2-3	6-0	6-2	3-9	12	12 1/2	12	8	6

Note: Bars C1 & C2 (N.S. & F.S.) equivalent in size to C3 (cut and bend as required)



WILLOWBROOK LAKE DAM REPLACEMENT U-WALL DETAIL

NO.	REVISION	DATE

Project Number: 160101  
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 Drawn By: C.W.H.  
 Designed By: F.E.A.  
 Checked By: J.L.L.  
 Sheet: 23