

SITework PLANS

FOR THE

LYMAN

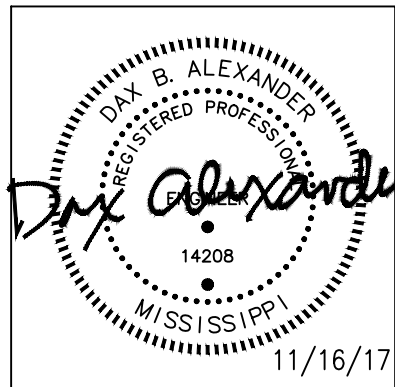
BOAT MAINTENANCE YARD

HARRISON COUNTY, MISSISSIPPI

PREPARED FOR THE



1141 BAYVIEW AVENUE  
BILOXI, MISSISSIPPI 39530  
228-374-5000 (PH) 228-374-5005 (FAX)



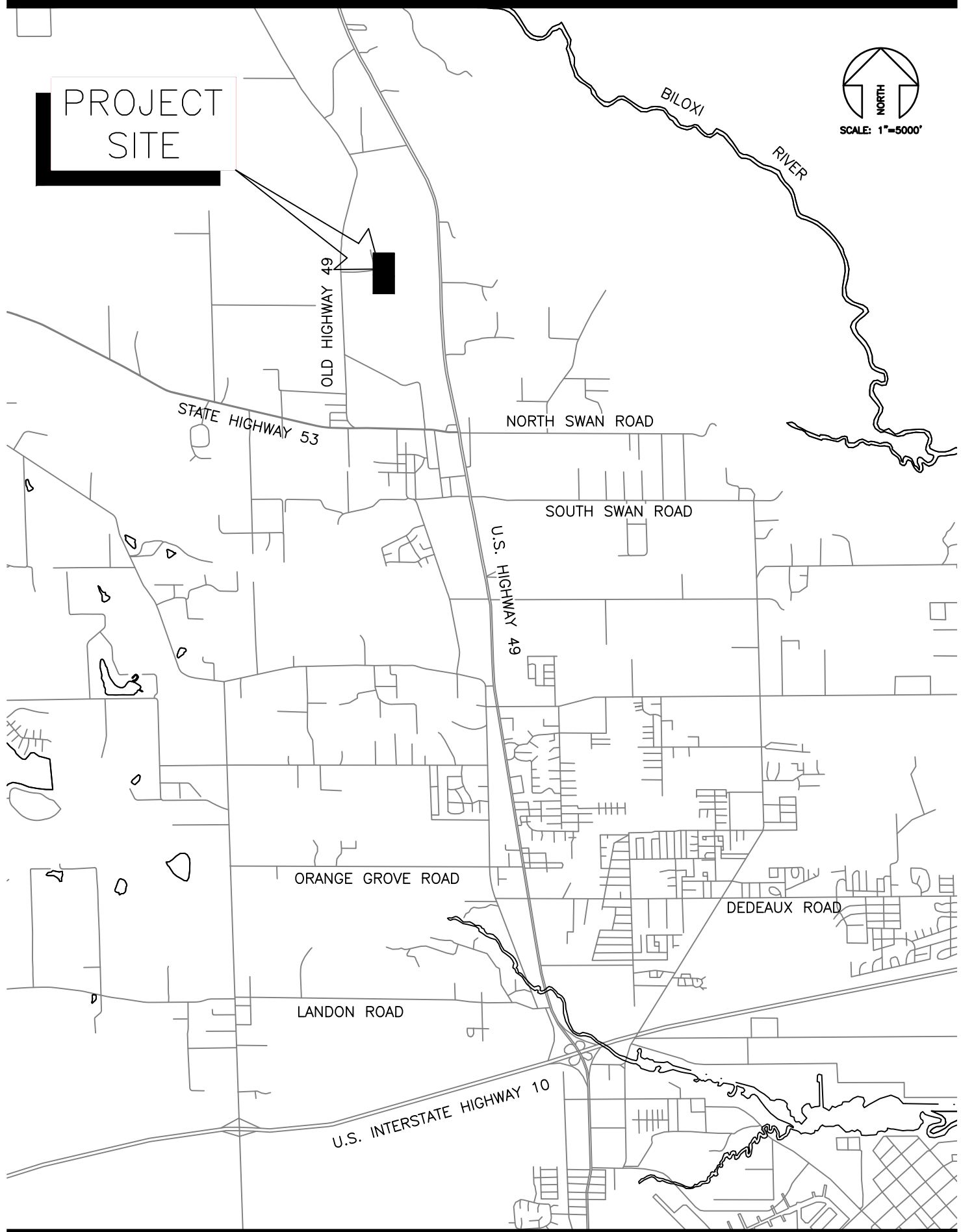
NOVEMBER , 2017



BROWN, MITCHELL  
& ALEXANDER, INC.  
CONSULTING ENGINEERS  
www.bmaengineers.com

401 Cowan Road,  
Suite A,  
Gulfport, MS 39507  
(228)864-7612  
Fax (228)864-7676  
  
796 Vieux Marche,  
2nd Floor,  
Biloxi, MS 39530  
(228)436-7612  
Fax (228)436-7676

LOCATION MAP



SHEET INDEX

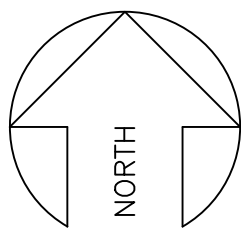
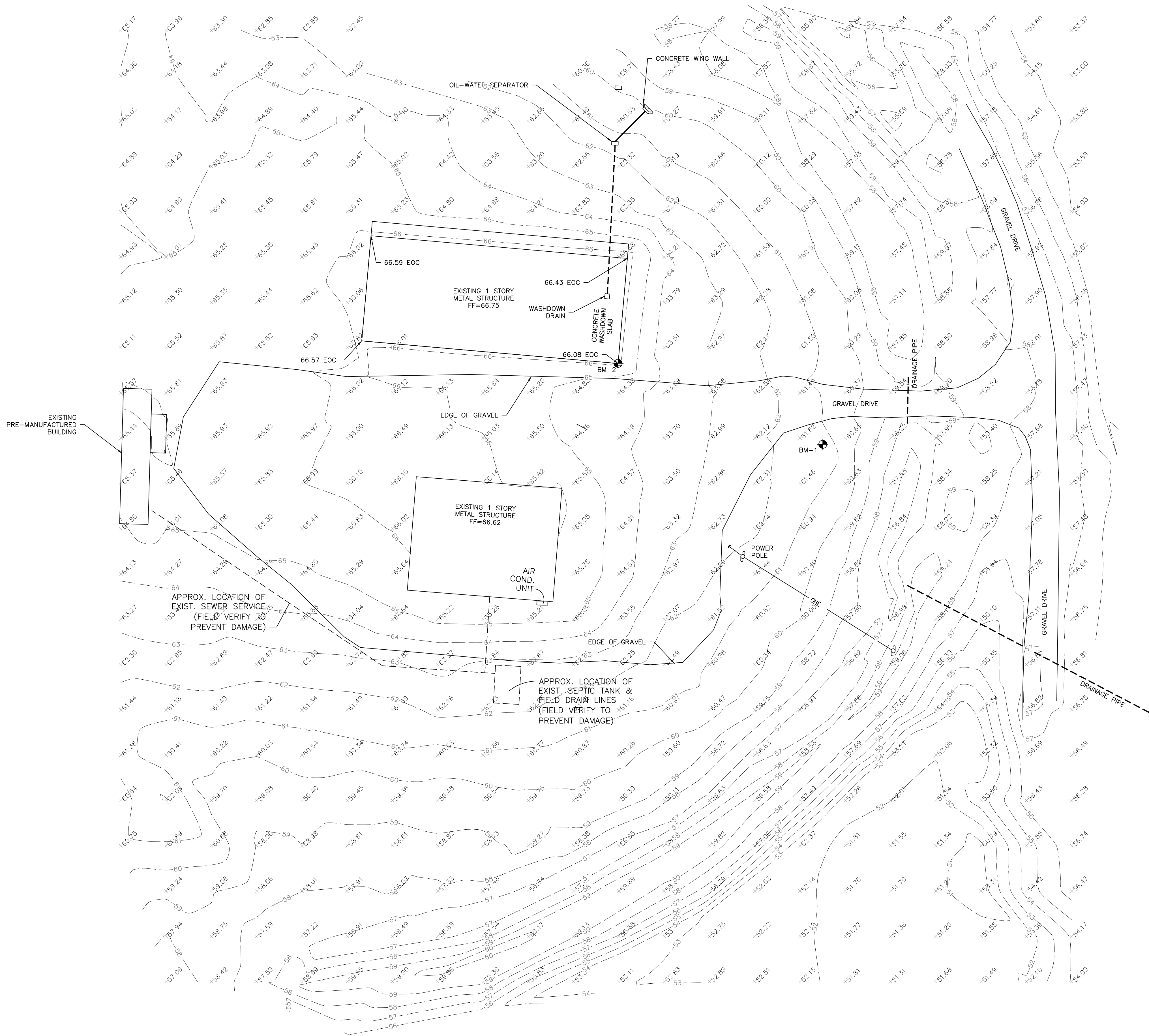
DESCRIPTION	SHEET NO.
TITLE SHEET / LOCATION MAP / SHEET INDEX	C-001
EXISTING CONDITIONS PLAN	C-101
SITE LAYOUT PLAN	C-102
GRADING AND DRAINAGE / EROSION CONTROL PLAN	C-103
CONSTRUCTION DETAILS	C-501

BMA No. 17-3538

SET NO. \_\_\_\_\_



THE PROFESSIONAL ENGINEERING SERVICES PROVIDED BY BROWN, MITCHELL & ALEXANDER, INC.(BMA) ARE RELATIVE TO THESE FINAL DRAWINGS AS SHOWN. ANY MODIFICATIONS TO THE DRAWINGS & ASSOCIATED SPECIFICATIONS AS PREPARED BY BMA WITHOUT THE WRITTEN CONSENT OF BMA, SHALL RELIEVE BMA OF ANY & ALL LIABILITY AS A RESULT OF ANY SUCH MODIFICATIONS.



SCALE: 1"=30'

ELEVATION BENCHMARK  
VERTICAL DATUM: NAVD-88,EPOC 2009.55  
BASED ON NGS MARK 49V9A

BM-1	DESCRIPTION
	1/2" IRON ROD SET
ELEV.	N=894865.4855
	E=369225.0857

BM-2	DESCRIPTION
	CORNER OF EXISTING CONCRETE
ELEV.	N.389269.46
	E.89473.64

#### LEGEND

- = computed point
- = iron rod/pipe found
- ⊙ = iron rod set
- ⊗ = X-mark found
- ⊕ = X-mark set
- ⊖ = Pk nail found
- ⦿ = fence post found
- ⦿ = bolt found
- ⦿ = axle found
- ▲ = RR spike found
- △ = RR spike set
- ⊠ = Southcentral Bell box
- ⊠ = telephone manhole
- c/o = clean out
- Ⓢ = sanitary sewer manhole
- Ⓢ = drainage manhole
- Ⓢ = manhole
- Ⓢ = drainage inlet
- Ⓢ = fire hydrant
- Ⓢ = water meter
- Ⓢ = well
- Ⓢ = irrigation control valve
- Ⓢ = gas meter
- Ⓢ = conc. monument found
- Ⓢ = conc. monument set
- OHE = existing overhead electric
- ☆ = light pole
- Ⓢ = service/power pole
- Ⓢ = guy wire
- Ⓢ = electric box
- Ⓢ = electric meter
- Ⓢ = electric manhole
- Ⓢ = existing cellular tower
- Ⓢ = # of parking spaces

#### GENERAL NOTES:

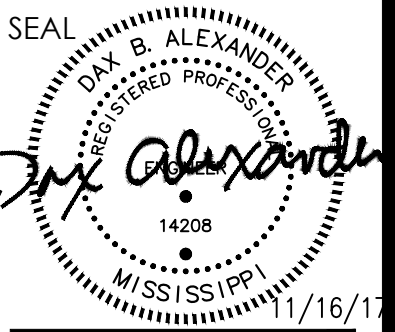
- CONTRACTOR IS RESPONSIBLE FOR HAVING UTILITIES LOCATED PRIOR TO ANY DIGGING OR EXCAVATION ACTIVITIES. CONTRACTOR SHALL MAKE EVERY EFFORT TO PROTECT EACH PRIVATE UTILITY ENCOUNTERED AND COORDINATE ADJUSTMENTS AND/OR UTILITY RELOCATIONS WITH UTILITY OWNERS. ANY DAMAGES TO UTILITIES SHALL BE REPLACED/REPAIRED AT THE CONTRACTOR'S EXPENSE.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS BASED UPON THE BEST INFORMATION AVAILABLE TO THE ENGINEER, AND HAS NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR HIS REPRESENTATIVE. THE ENGINEER CANNOT AND DOES NOT WARRANT THAT THE INFORMATION IS COMPLETE OR ACCURATE. THE CONTRACTOR SHALL PERFORM A PRELIMINARY INVESTIGATION TO DETERMINE THE EXACT LOCATION OF UTILITY LINES BEFORE EXCAVATION OPERATIONS AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES, WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
- CONTRACTOR VERIFICATION – BEFORE UNDERTAKING EACH PART OF THE WORK, THE CONTRACTOR SHALL CAREFULLY STUDY AND COMPARE THE PLANS AND SPECIFICATIONS AND CHECK AND VERIFY PERTINENT FIGURES SHOWN THEREON AND ALL APPLICABLE FIELD MEASUREMENTS. IF ANY CONFLICTS, ERRORS, DISCREPANCIES, OR OTHER UNSATISFACTORY CONDITIONS ARE DISCOVERED EITHER ON THE CONSTRUCTION DOCUMENTS OR IN THE FIELD CONDITIONS, THE CONTRACTOR SHALL PROMPTLY REPORT IN WRITING TO THE ENGINEER AND SHALL OBTAIN A WRITTEN INTERPRETATION OR CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING WITH ANY WORK AFFECTED THEREBY.
- PERMITTING – THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS/APPROVALS FROM FEDERAL, STATE, AND LOCAL GOVERNING AGENCIES AND ENSURE THAT ALL FEDERAL, STATE, AND LOCAL REQUIREMENTS/GUIDELINES ARE FOLLOWED.
- DEBRIS DISPOSAL – CONTRACTOR SHALL DISPOSE OFF-SITE ALL MISCELLANEOUS TRASH & DEBRIS FROM ALL AREAS WITHIN THE LIMITS OF WORK AT THE END OF EACH DAY. ALL SUCH WORK AND DISPOSAL SHALL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REQUIREMENTS.

#### UTILITY ADJUSTMENT AND RELOCATION NOTE:

- CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING THE APPROPRIATE FITTINGS, EQUIPMENT, AND LABOR TO MAKE ALL ADJUSTMENTS AND/OR RELOCATIONS TO UTILITY APPURTENANCES. ALL COSTS WILL BE ABSORBED IN THE UNIT PRICE BID FOR THE ADJUSTMENT. THE CONTRACTOR SHALL COORDINATE WITH THE CITY FOR ADJUSTMENT AND RELOCATIONS. THE CONTRACTOR SHALL VERIFY MATERIAL OF ALL EXISTING UTILITIES DESIGNATED FOR ADJUSTMENT OR RELOCATION.

THE CONTRACTOR SHALL CALL THE MISSISSIPPI DAMAGE PREVENTION NUMBER (1-800-227-6477) BY LAW TO LOCATE ALL EXISTING UTILITIES ON SITE PRIOR TO HIS WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING UTILITIES UNDER THIS CONTRACT AND BE RESPONSIBLE FOR ANY AND ALL DAMAGES TO UTILITIES THAT RESULT FROM CONTRACTOR'S WORK.

**BROWN, MITCHELL  
& ALEXANDER, INC.**



REV DATE BY

**LYMAN BOAT MAINTENANCE YARD**  
MISSISSIPPI DEPARTMENT OF MARINE RESOURCES  
HARRISON COUNTY, MISSISSIPPI

CAD DBT  
ENG DBA  
DATE 11.16.17  
SCALE SHOWN  
BMA# 3538  
FILE \3538\3538 SITE2r1

SHEET

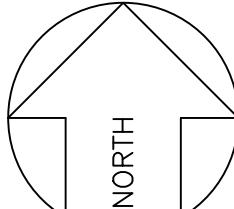
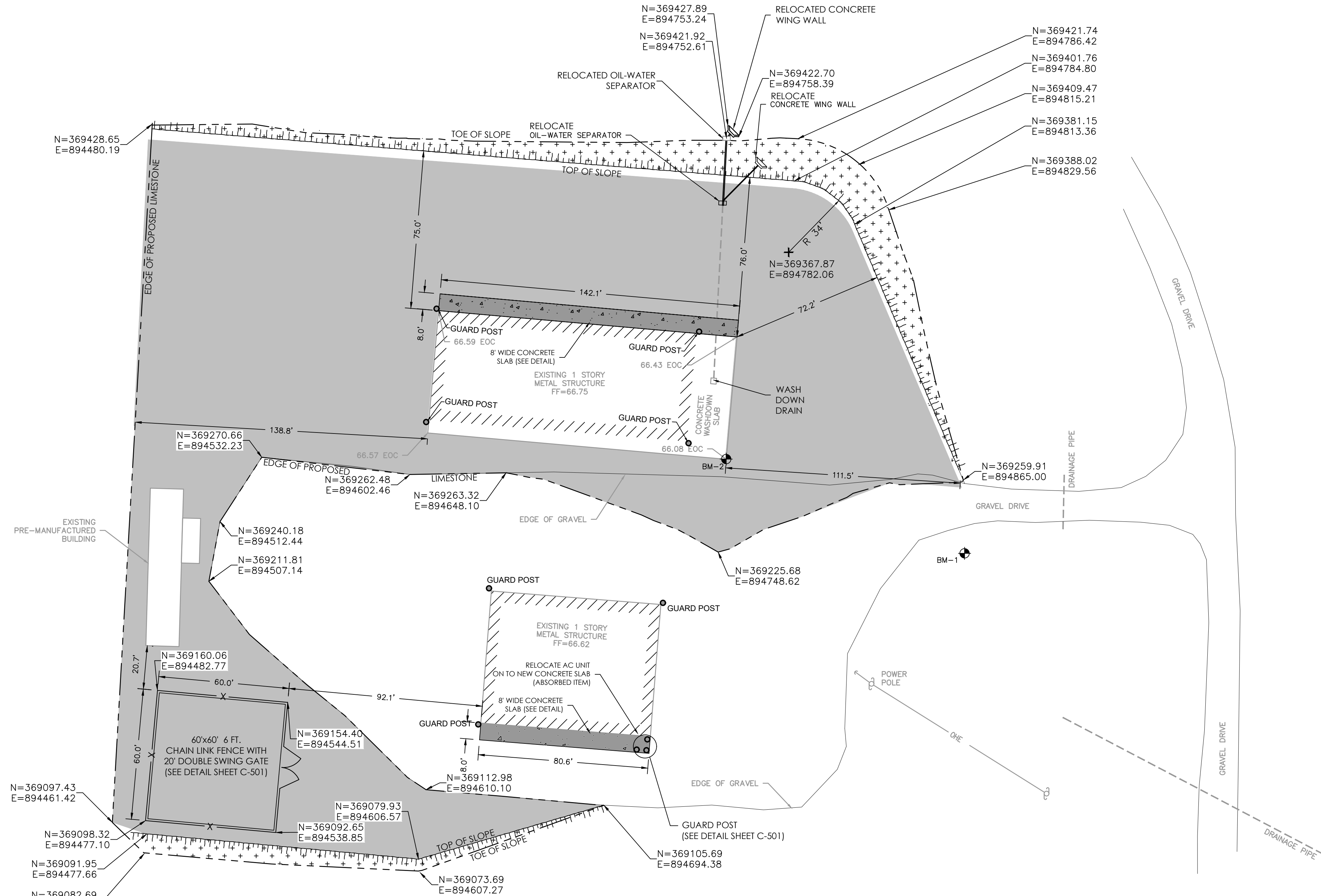
**C-101**

**EXISTING CONDITIONS**

401 Cowart Road,  
Gulfport, MS 39507  
(228)864-7612  
Fax (228)864-7676  
796 Vieux Marche,  
2nd Floor,  
Biloxi, MS 39530  
(228)436-7612  
Fax (228)436-7676

**CONSULTING ENGINEERS**  
www.bmaengineers.com





LAYOUT NOTES:

1. EXACT INSTALLATION LOCATION OF IMPROVEMENTS SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER OR HIS AUTHORIZED REPRESENTATIVE PRIOR TO THE CONSTRUCTION OF THE IMPROVEMENTS.
2. PAVEMENT TIE-IN - WHEN INSTALLING NEW PAVEMENT OR PAVEMENT REPAIR, CONTRACTOR SHALL MATCH EXISTING ADJACENT PAVEMENT IN GRADE AND ALIGNMENT.

### LEGEND

 TOP OF SLOPE (LIMESTONE)  
 LIMITS OF FILL

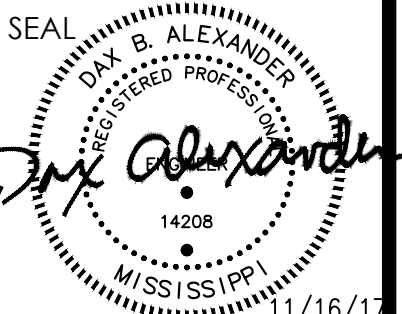
610 LIMESTONE PAVING

PROPOSED CONCRETE

## PROPOSED HYDROSEE

BROWN, MITCHELL  
& ALEXANDER, INC.

CONSULTING ENGINEERS  
www.bmaengineers.com



REV DATE BY

REV DATE BY

LYMAN BOAT MAINTENANCE YARD  
MISSISSIPPI DEPARTMENT OF MARINE RESOURCES

## SITE LAYOUT PLAN

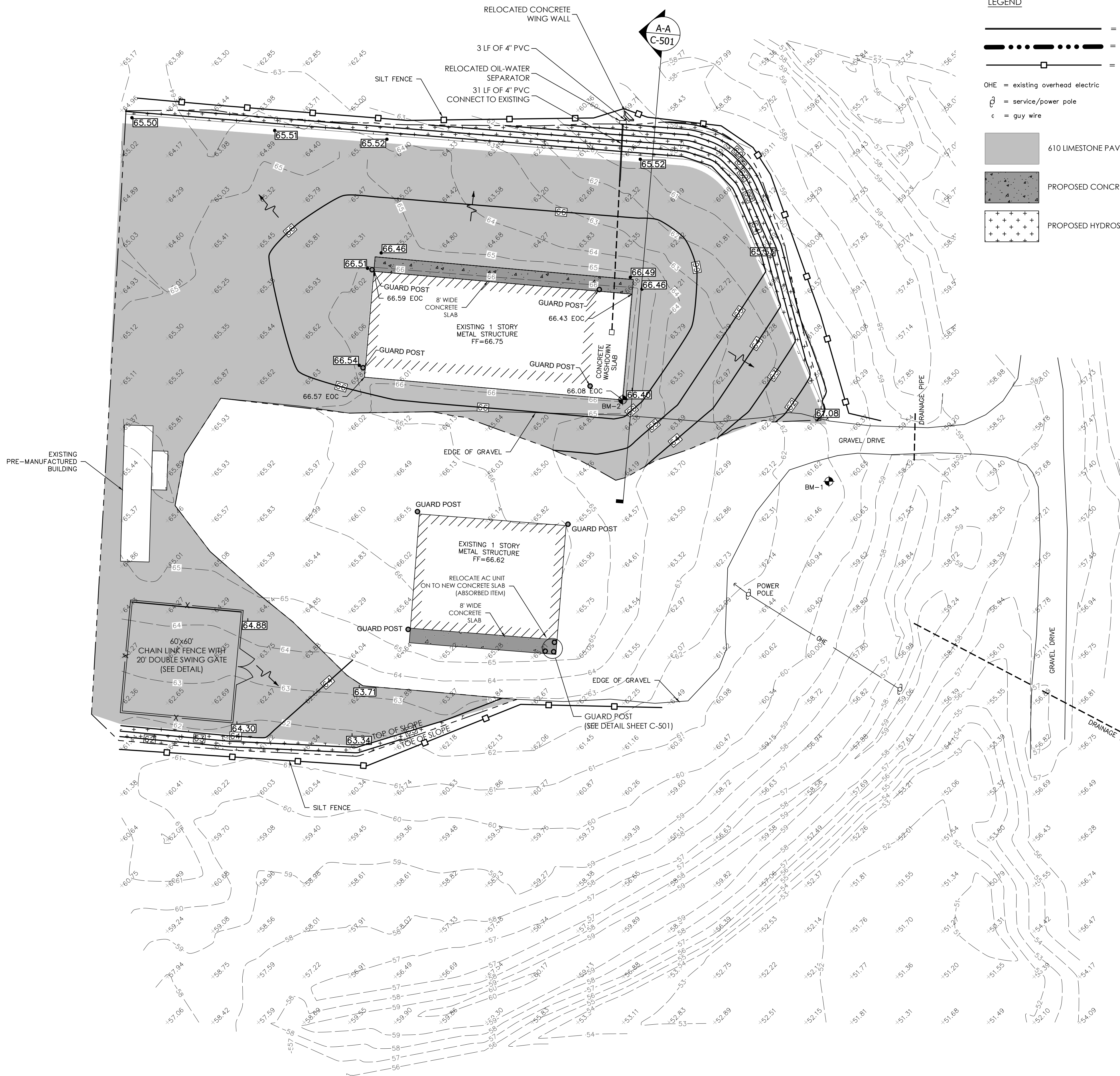
CAD	DBT
ENG	DBA
DATE	11.16.17
SCALE	SHOWN
BMA#	3538

SHEET

# C-102



THE PROFESSIONAL ENGINEERING SERVICES PROVIDED BY BROWN, MITCHELL & ALEXANDER, INC.(BMA) ARE RELATIVE TO THESE FINAL DRAWINGS AS SHOWN. ANY MODIFICATIONS TO THE DRAWINGS & ASSOCIATED SPECIFICATIONS AS PREPARED BY BMA WITHOUT THE WRITTEN CONSENT OF BMA, SHALL RELIEVE BMA OF ANY & ALL LIABILITY AS A RESULT OF ANY SUCH MODIFICATIONS.

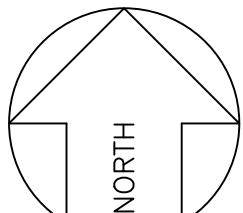


LEGEND

- = PROPOSED DRAINAGE PIPE  
- - - - - = LIMITS OF CONSTRUCTION  
□ = SILT FENCE

- OHE = existing overhead electric  
⊕ = service/power pole  
⊖ = guy wire

- 610 LIMESTONE PAVING  
PROPOSED CONCRETE  
PROPOSED HYDROSEED



SCALE: 1"=30'

ELEVATION BENCHMARK  
VERTICAL DATUM: NAVD-88,EPOC 2009.55  
BASED ON NGS MARK 49V9A

BM-1	DESCRIPTION
1/2" IRON ROD SET	
ELEV.	N=894865.4855
60.95	E=369225.0857

BM-2	DESCRIPTION
CORNER OF EXISTING CONCRETE	
ELEV.	N.369269.46
66.08	E.89473.64

DRAINAGE NOTES:

- ALL GRADES SHOWN ARE PROPOSED TOP OF PAVEMENT, TOP OF CURB, OR AT-GRADE SPOT ELEVATIONS UNLESS NOTED OTHERWISE.
- TOP ELEVATIONS OF INLETS AND BOXES ARE APPROXIMATE. FINAL GRADES SHALL BE FIELD DETERMINED BY THE ENGINEER OR AN AUTHORIZED REPRESENTATIVE. INVERT ELEVATIONS MAY BE ADJUSTED DUE TO OBSTRUCTION FOUND DURING EXCAVATION OPERATIONS. ADDITIONAL PAYMENT WILL NOT BE MADE FOR ADJUSTMENTS TO BOX SIZES TO FIT FIELD CONDITIONS.
- NO IMPROVEMENT SHALL INTERFERE OR BLOCK DRAINAGE INCLUDING, BUT NOT LIMITED TO: CURB, SIDEWALK, LANDSCAPE AREAS, LIGHTING, ETC.
- SEE GRADING & DRAINAGE PLANS AND DRAINAGE DETAILS FOR ADDITIONAL INFORMATION.

EROSION CONTROL NOTES:

- THE CONTRACTOR SHALL BE REQUIRED TO FURNISH ALL MATERIALS AND PERFORM ALL WORK FOR THE PROPER INSTALLATION, MAINTENANCE AND REMOVAL OF TEMPORARY EROSION CONTROL MEASURES NECESSARY TO CONTROL SILTATION. IF THERE IS NO SEPARATE PAY ITEM FOR TEMPORARY EROSION CONTROL MEASURES, THE COST OF TEMPORARY EROSION CONTROL SHALL BE ABSORBED IN OTHER ITEMS BID.
- THE PLACEMENT OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE IN ACCORDANCE WITH THE MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY PLANNING AND DESIGN MANUAL FOR THE CONTROL OF EROSION, SEDIMENT AND STORMWATER.
- SILT FENCES SHALL BE INSTALLED AROUND ALL STOCKPILED MATERIALS.
- CONTRACTOR IS RESPONSIBLE FOR MAINTAINING EROSION CONTROLS THROUGHOUT THE DURATION OF THE PROJECT.
- TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL NOT BE REMOVED UNTIL THE AREA IS STABILIZED AS APPROVED BY THE ENGINEER.
- ALL EQUIPMENT REPAIR AND MAINTENANCE SHALL BE PERFORMED OFFSITE.
- RECEPTACLES SHALL BE PROVIDED TO PROPERLY DISPOSE OF ALL TRASH AND WASTE. ALL CONSTRUCTION DEBRIS SHALL BE PICKED UP AT THE END OF EACH DAY AND SHALL BE REMOVED COMPLETELY FROM THE SITE AT THE END OF THE PROJECT.
- SANITARY FACILITIES SHALL BE PROVIDED ON-SITE FOR ALL EMPLOYEES, UNLESS APPROVED OTHERWISE BY THE ENGINEER.
- TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO THE START OF ANY WORK IN THE AREA. IF IT WILL BE REQUIRED TO REMOVE THEM TEMPORARILY DUE TO CONSTRUCTION ACTIVITIES, ONCE THOSE ACTIVITIES ARE COMPLETED OR AT THE END OF THE WORK DAY, THE TEMPORARY CONTROLS SHALL BE REINSTALLED IMMEDIATELY.
- ALL EROSION CONTROLS SHALL BE INSTALLED IN ACCORDANCE WITH THE DETAILS.
- ADDITIONAL EROSION AND SEDIMENT CONTROLS MAY BE DEEMED NECESSARY IF THE CONTROLS INSTALLED ARE FOUND TO BE INEFFECTIVE.
- EROSION AND SEDIMENT CONTROLS SHALL BE INSPECTED WEEKLY AND FOLLOWING ANY RAIN EVENT. NON-FUNCTIONING, INEFFECTIVE OR DAMAGED CONTROLS SHALL BE REPAIRED, REPLACED OR SUPPLEMENTED WITH FUNCTIONAL CONTROLS WITHIN 24 HOURS OF DISCOVERY.
- THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ANY SEDIMENT THAT MIGRATES INTO THE STORM DRAIN SYSTEM.
- THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL OF ANY SEDIMENT OR CONSTRUCTION DEBRIS THAT IS TRACKED ONTO ADJACENT PAVED AREAS. ADJACENT STREETS SHALL BE KEPT CLEAN THROUGHOUT CONSTRUCTION AND SHALL BE CLEANED WITH A STREET-SWEEPER OR SIMILAR TECHNIQUE IMMEDIATELY UPON DISCOVERY OF SEDIMENT. WASHING DOWN OF THE STREET OR ANY PAVED AREAS IS NOT ALLOWED.
- ANY SEDIMENT THAT HAS MIGRATED OFFSITE WHETHER ONTO PUBLIC OR PRIVATE PROPERTY SHALL BE REMOVED IMMEDIATELY UPON DISCOVERY. THE SOURCE OF THE BREACH SHALL IMMEDIATELY BE LOCATED AND CORRECTED.

SITE EARTHWORK AND GRADING

BORROW MATERIAL WILL CONSIST OF MDOT CLASS 9, GROUP B, REQUIREMENTS OF THE MDOT SPECIFICATIONS.

BORROW MATERIAL SHALL BE PLACED IN NINE (9) INCH LIFTS AND COMPACTED TO NINETY-FIVE PERCENT (95%) STANDARD DENSITY.

ANY TOPSOIL STOCKPILED FROM SITE SHALL BE USED TO PLATE FINISHED SLOPE.

AREAS OF DISTURBED GROUND WHERE GRANULAR SURFACE MATERIAL IS NOT BEING INSTALLED SHALL BE HYDROSEED.

APPROPRIATE MEASURES SHALL BE MADE BY THE CONTRACTOR TO ENSURE THAT FINISHED GRADES CONFORM WITHIN A REASONABLE TOLERANCE OF THE PLANS.

GRANULAR COURSE (LIMESTONE)

THE GRANULAR SURFACE MATERIAL SHALL BE DENSE-GRADED CRUSHED DOMESTIC LIMESTONE, PLANT MIXED TO CONFORM TO SIZE NO. 610, MDOT SPECIFICATIONS.

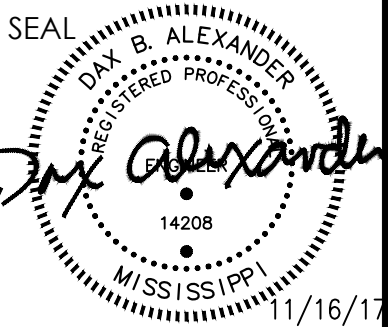
THE SPECIFIED DENSITY SHALL BE 95% STANDARD DENSITY.

THE FOUNDATION ON WHICH GRANULAR MATERIAL WILL BE LAID SHALL BE PREPARED BY CONTRACTOR TO THE LINES AND GRADES ESTABLISHED IN THE PLANS AND COMPACTED TO NINETY-FIVE PERCENT (95%) STANDARD DENSITY.

PRIOR TO FINAL ACCEPTANCE, ALL IRREGULARITIES, DEPRESSIONS, SOFT SPOTS, AND OTHER DEFICIENCIES FOUND BY ENGINEER SHALL BE CORRECTED BY CONTRACTOR TO MEET THE REQUIREMENTS OF THESE SPECIFICATIONS, WITHOUT ADDITIONAL COMPENSATION TO CONTRACTOR.

BROWN, MITCHELL  
& ALEXANDER, INC.

bma



REV DATE BY

LYMAN BOAT MAINTENANCE YARD  
MISSISSIPPI DEPARTMENT OF MARINE RESOURCES  
HARRISON COUNTY, MISSISSIPPI

CAD DBT  
ENG DBA  
DATE 11.16.17  
SCALE SHOWN  
BMA# 3538  
FILE \3538\3538 SITE2r1

SHEET

C-103

GRADING AND DRAINAGE / EROSION CONTROL PLAN

401 Cowart Road,  
Gulfport, MS 39507  
(228)864-7612  
Fax (228)864-7676  
796 Vieux Marche,  
2nd Floor,  
Biloxi, MS 39530  
(228)436-7612  
Fax (228)436-7676

CONSULTING ENGINEERS  
www.bmaengineers.com



## GALVANIZED FENCE SPECIFICATIONS

Fence Posts. Line fence posts shall be two and one-half (1½)-inch diameter Schedule 40 galvanized pipe. End, corner, angle, and pull posts shall be three (3)-inch diameter, Schedule 40 galvanized pipe.

Top rail shall be one and five-eighths (1 $\frac{5}{8}$ )-inch diameter, Schedule 40 galvanized pipe. Post tops shall be one piece aluminum casting with a hole for the top rail.

Stretcher bars shall be galvanized steel, three-sixteenths (3/16)-inch by three-fourths (3/4)-inch equivalent cross sectional area.

Galvanized fabric bands shall be furnished to fasten the fabric to line posts and top rails at fifteen (15)-inch intervals and to line the top rail at twenty-four (24)-inch intervals.

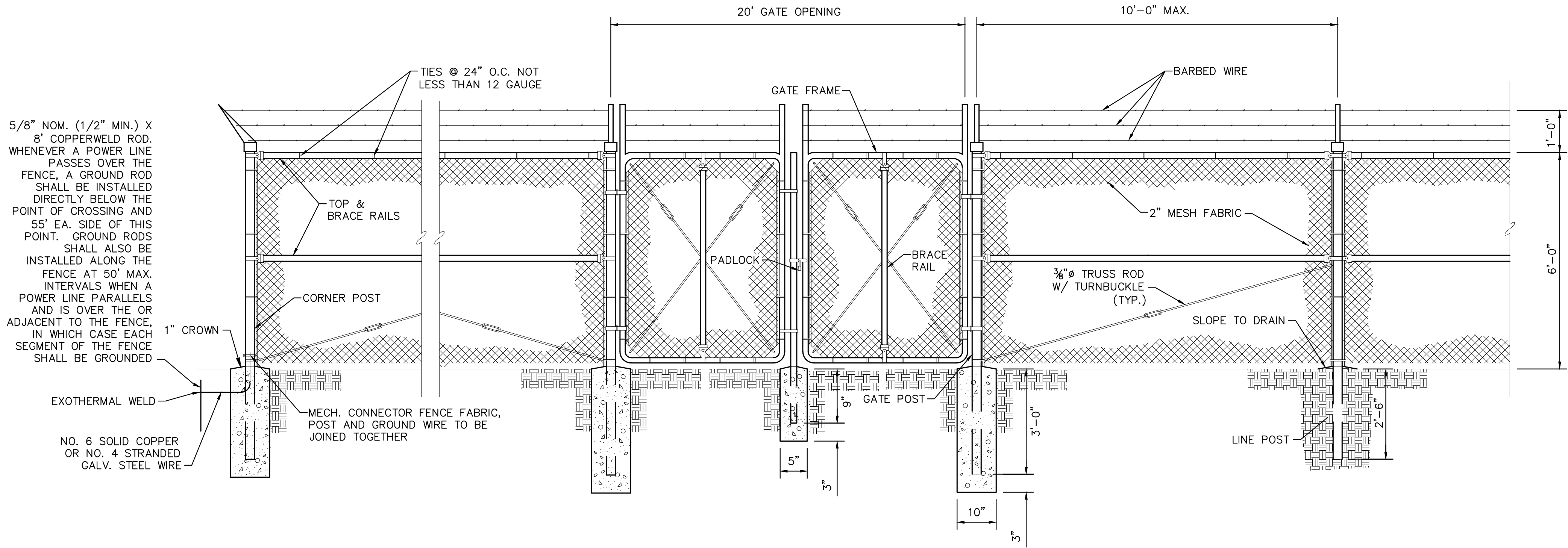
Tension wires shall be galvanized coated, seven (7)-gauge with a minimum tensile strength of 60,000 psi.

Concrete for post foundations shall be 3,000 psi concrete.

Terminal posts, line posts, and all rails shall be pre-cut to specified lengths.

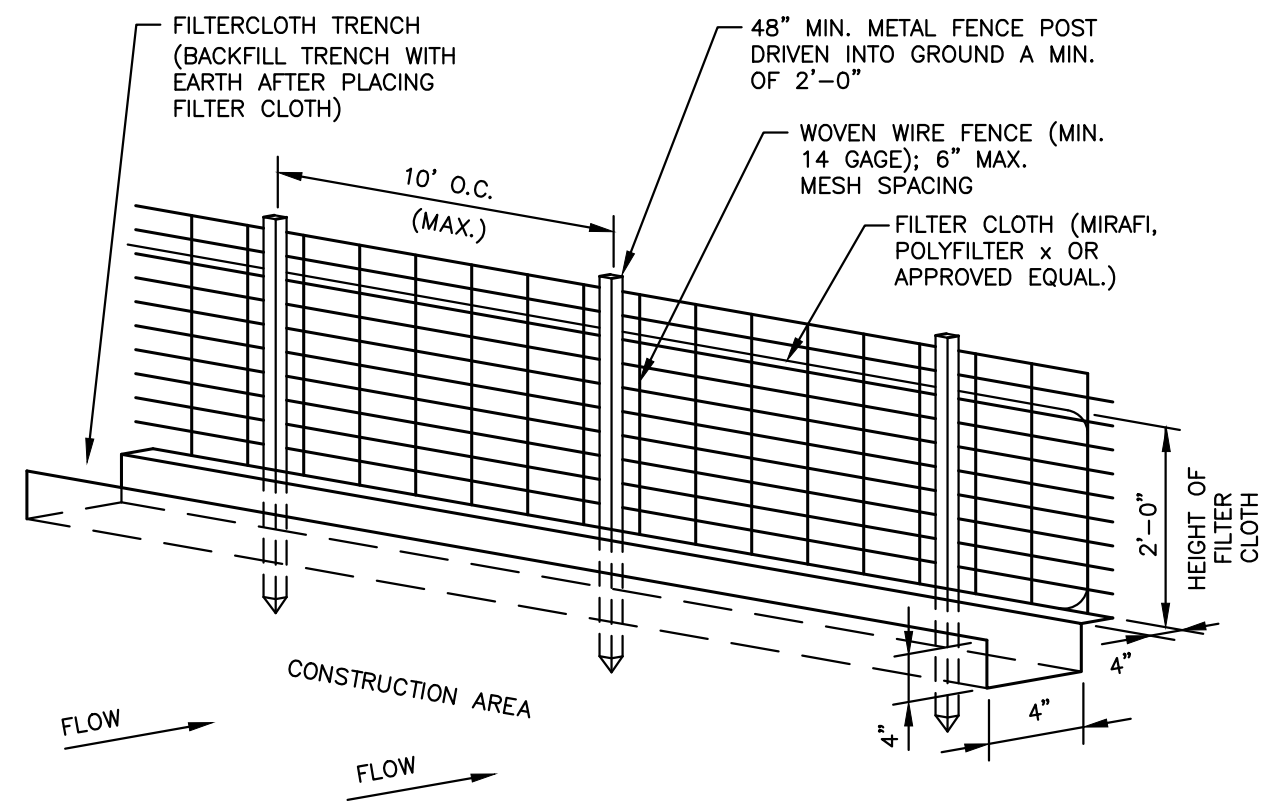
The chain link fence shall be installed in accordance with ASTM F567, the manufacturer's recommendations, and as otherwise required in these plans.

5/8" NOM. (1/2" MIN.) X  
8" COPPERWELD ROD.  
WHENEVER A POWER LINE  
PASSES OVER THE  
FENCE, A GROUND ROD  
SHALL BE INSTALLED  
DIRECTLY BELOW THE  
POINT OF CROSSING AND  
55' E.A. SIDE OF THIS  
POINT. GROUND RODS  
SHALL ALSO BE  
INSTALLED ALONG THE  
FENCE AT 50' MAX.  
INTERVALS WHEN A  
POWER LINE PARALLELS  
AND IS OVER THE OR  
ADJACENT TO THE FENCE,  
IN WHICH CASE EACH  
SEGMENT OF THE FENCE  
SHALL BE GROUNDED



## CHAIN LINK FENCE DETAIL

SCALE: N.T.S.



## CONSTRUCTION SPECIFICATIONS

INSTALLATION:

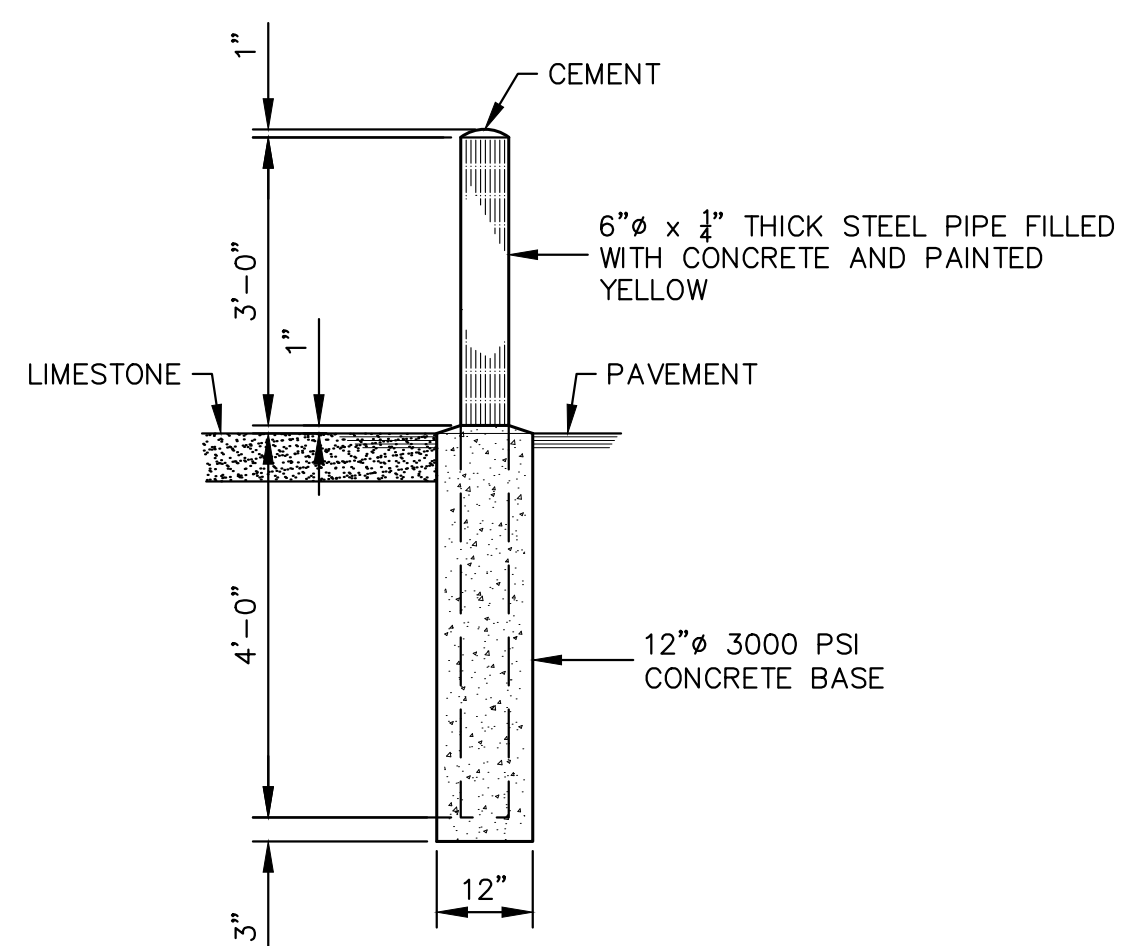
1. USE STEEL "T" POSTS THAT ARE 5 FEET IN LENGTH.
2. INSTALL POSTS STARTING AT THE CENTER OF THE LOWEST POINT OF THE FENCE LINE. DRIVE POSTS 12 INCHES INTO THE GROUND.
3. INSTALL POSTS ON 10-FOOT CENTERS IF METAL MESH FENCING IS TO BE USED AS ADDITIONAL SUPPORT. IF NO METAL FENCING SUPPORT IS USED, THEN INSTALL POSTS ON 6-FOOT CENTER OR LESS.
4. EXCAVATE A TRENCH 4 INCHES DEEP BY 4 INCHES WIDE ON THE UPHILL SIDE OF THE FENCE POSTS.
5. STAPLE OR NAIL SILT FENCE FABRIC TO POSTS ON UPHILL SIDE, LEAVING 8 INCHES ON THE BOTTOM TO EXTEND DOWN AND ACROSS THE BOTTOM OF THE TRENCH.
6. BACKFILL TRENCH AND TAMP DOWN OVER FABRIC.
7. ALLOW 6-INCH OVERLAP AT JOINTS.
8. MULCH BARE GROUND UPHILL OF SILT FENCE OR PROVIDE OTHER EROSION CONTROL MEASURES.

MAINTENANCE:

1. REMOVE ACCUMULATED SEDIMENT ALONG THE FENCE WHEN IT HAS REACHED A THIRD TO A HALF OF THE FENCE HEIGHT. DO NOT PLACE SEDIMENT ON THE DOWNHILL SIDE.
2. INSPECT WEEKLY AND AFTER EACH SIGNIFICANT STORM EVENT (GREATER THAN 1/2 INCH OF RAIN).
3. REMOVE FENCE WHEN AREA ABOVE THE FENCE HAS BEEN STABILIZED.
4. IF FABRIC IS TORN, THEN REPLACE WITH A NEW PIECE THAT STRETCHES TO POST ON EITHER SIDE OF THE TEAR.

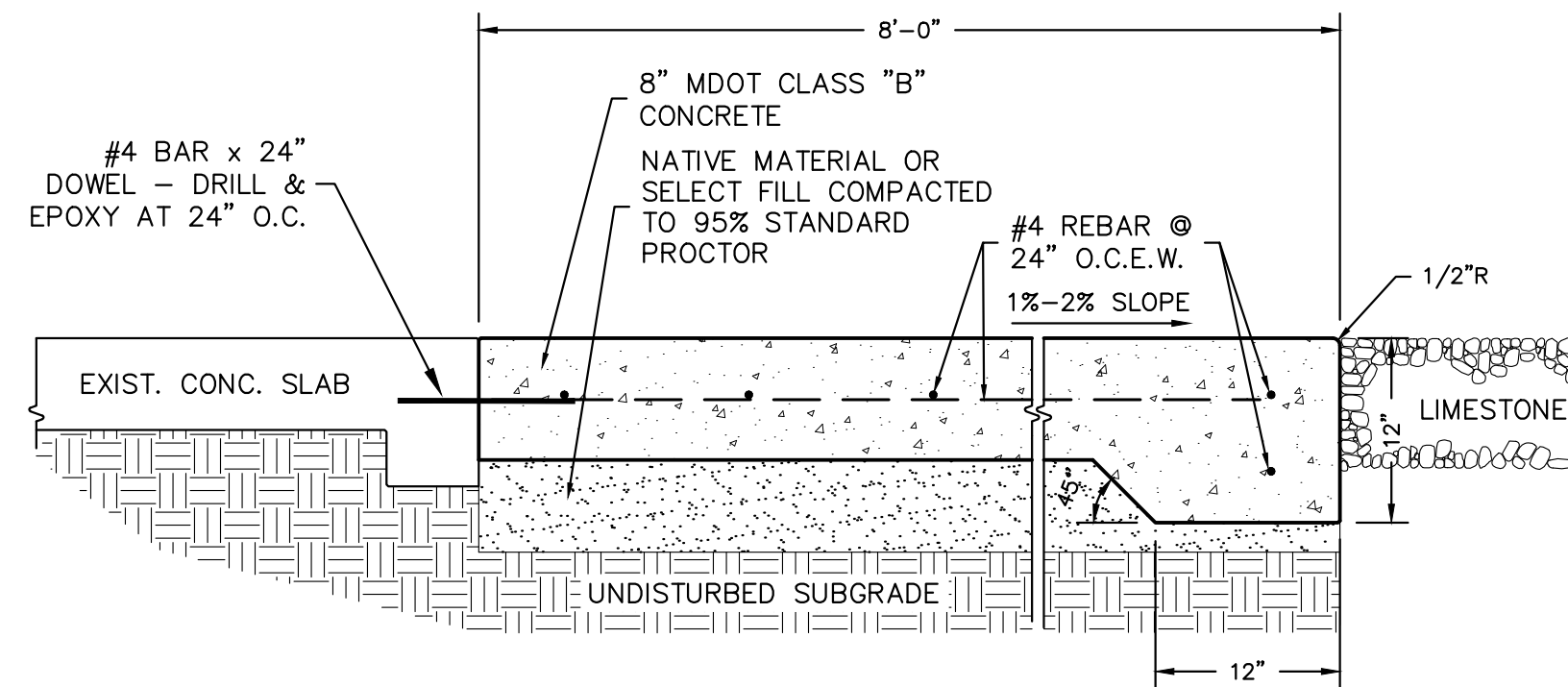
### SILT FENCE DETAIL

SCALE: N.T.S.



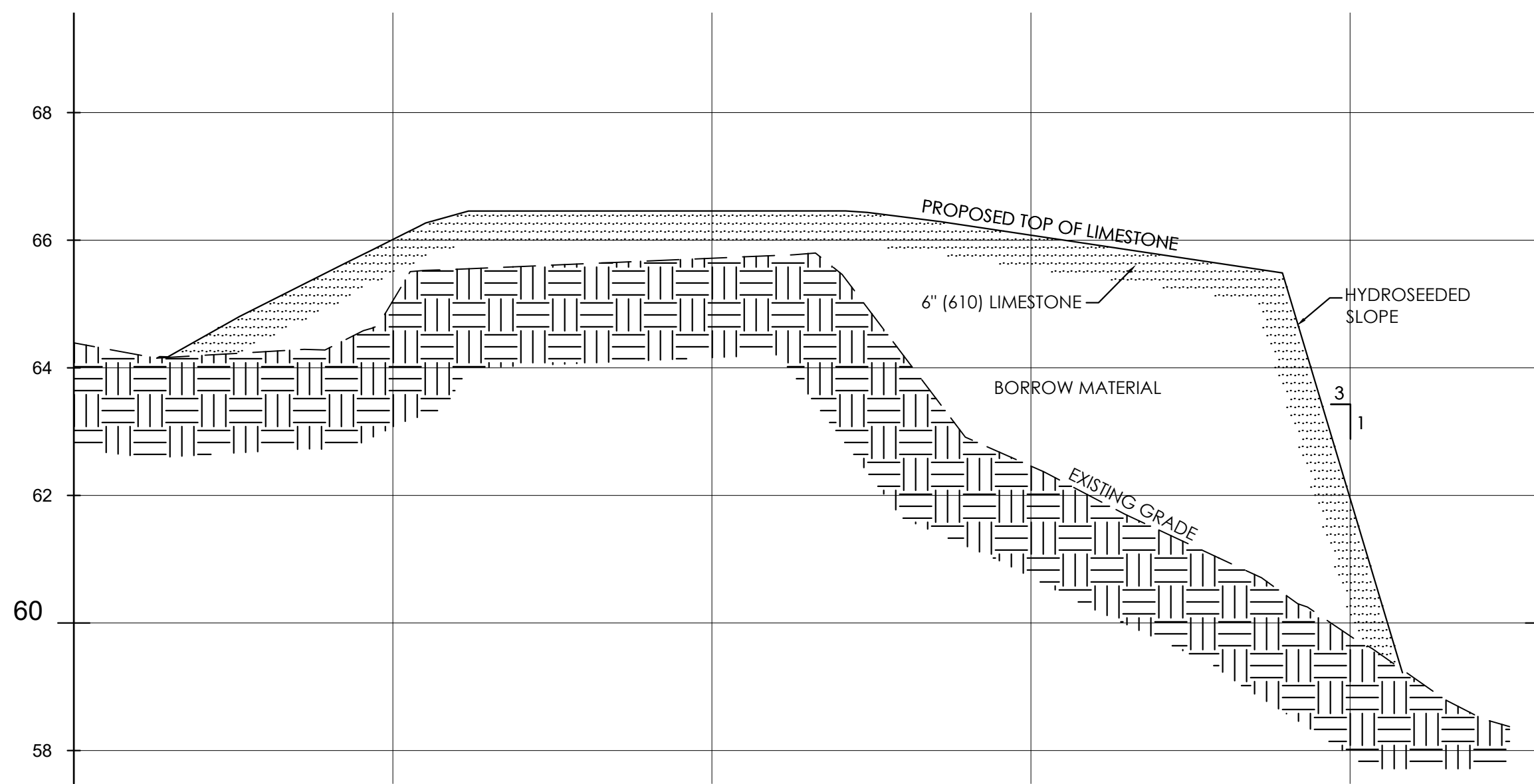
TYPICAL GUARD POST

SCALE: 1" = 2'



STANDARD DUTY CONCRETE  
PAVEMENT SECTION

SCALE: 1" = 1'



 **DETAIL SECTION A-A**  
1"=2' VERT. / 1"=20' HORIZ.