

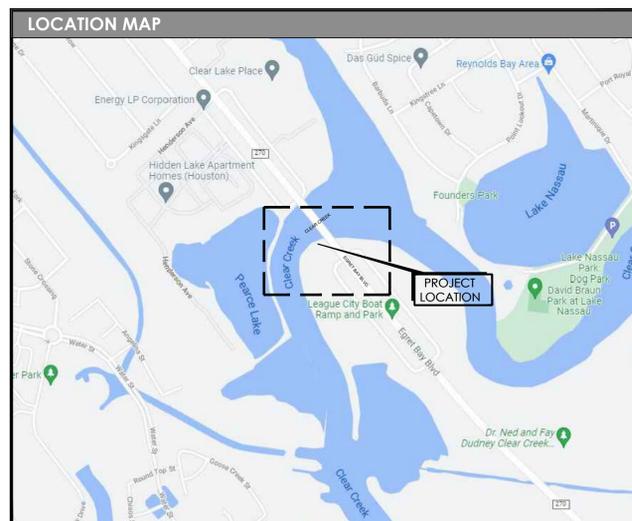
The City of League City  
 300 WEST WALKER STREET, LEAGUE CITY TEXAS 77573

# FM270 PUBLIC BOAT RAMP RENOVATION

JANUARY, 2023  
 CIP/PROJECT ID NO. PK 1804  
 PROJECT BID NO.



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CVR	COVER & INDEX SHEET
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REVIEW SIGNATURES	
ENGINEERING:	
FLOODPLAIN ADMINISTRATOR:	
UTILITY LINE REPAIR:	N/A
WASTEWATER:	N/A
WATER PRODUCTION:	N/A
STREET, STORM WATER & TRAFFIC:	N/A
FIRE MARSHAL:	N/A
CITY ARBORIST:	
PLANNING & ZONING:	
PARKS:	N/A
PROJECT MANAGEMENT:	<i>Robert (Bob) W. Duke</i> Robert (Bob) W. Duke 02/17/23

The review signatures above for this set of plans in no way implies approval or acceptance and is purely a reflection of the City's review process.

CHRISTOPHER SIMS, P.E.  
 DIRECTOR OF ENGINEERING  
 CITY OF LEAGUE CITY

The signer of this set of plans has no objection to the design of these plans. Through the review process these plans have been found to be in general compliance with League City's "General Design and Construction Standards" manual and Construction Details. It should be noted that all calculations, measurements and overall line work within these plans should be checked and verified. This approval is good for 1 (one) year from the date of signing as shown. The plans submitted have been prepared, signed and sealed by a professional engineer licensed to practice engineering in the state of Texas, which conveys the engineer's responsibility and accountability. Design Engineer assumes all responsibility for any inconsistencies or imperfections in these plans.

A PRE-CONSTRUCTION MEETING WITH THE CITY OF LEAGUE CITY PMO DEPARTMENT IS REQUIRED AT LEAST 10 WORKING DAYS PRIOR TO ON SITE CONSTRUCTION ACTIVITIES. CALL 281-554-1436 FOR A MEETING DATE AND TIME. A PRE-CONSTRUCTION MEETING FOR THIS PROJECT MAY NOT BE SCHEDULED AND CONSTRUCTION OF THE PROJECT MAY NOT COMMENCE PRIOR TO APPROVAL OF THESE PLANS BY THE CITY ENGINEER AS EVIDENCED BY HIS SIGNATURE.



1/04/2023

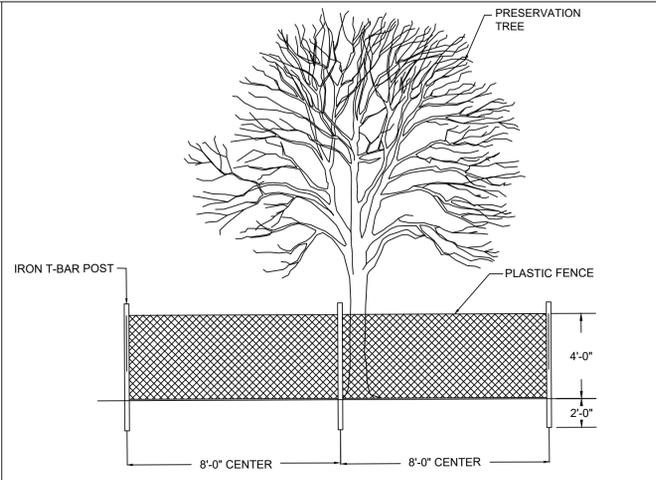
**BURDITT**  
 LAND | PLACE

310 Longmire, Conroe, TX 77304  
 P: (936) 756-3041 | F: (936) 539-3240  
 www.burditt.com



**Tree Protection Fencing Installation.**

1. Tree protection fencing is designated in the Tree Preservation Plan.
2. Fencing as follows:
  - (a) Fabric, 4' tall plastic fence.
  - (b) Iron T-bar posts, 6' tall, placed 8' - 0" on center, 24" into the ground.
  - (c) Fence is to be attached to posts with wire ties placed every 24" on center.
  - (d) Fence is to be placed a minimum of 1 foot from all root prune lines.
3. No access to fenced areas shall be permitted without prior approval of the Owner's Representative.
4. Contractor shall provide for maintenance and repair of fencing during site work construction.
5. Contractor shall remove fence after completion of the site work unless otherwise notified by the Owner.



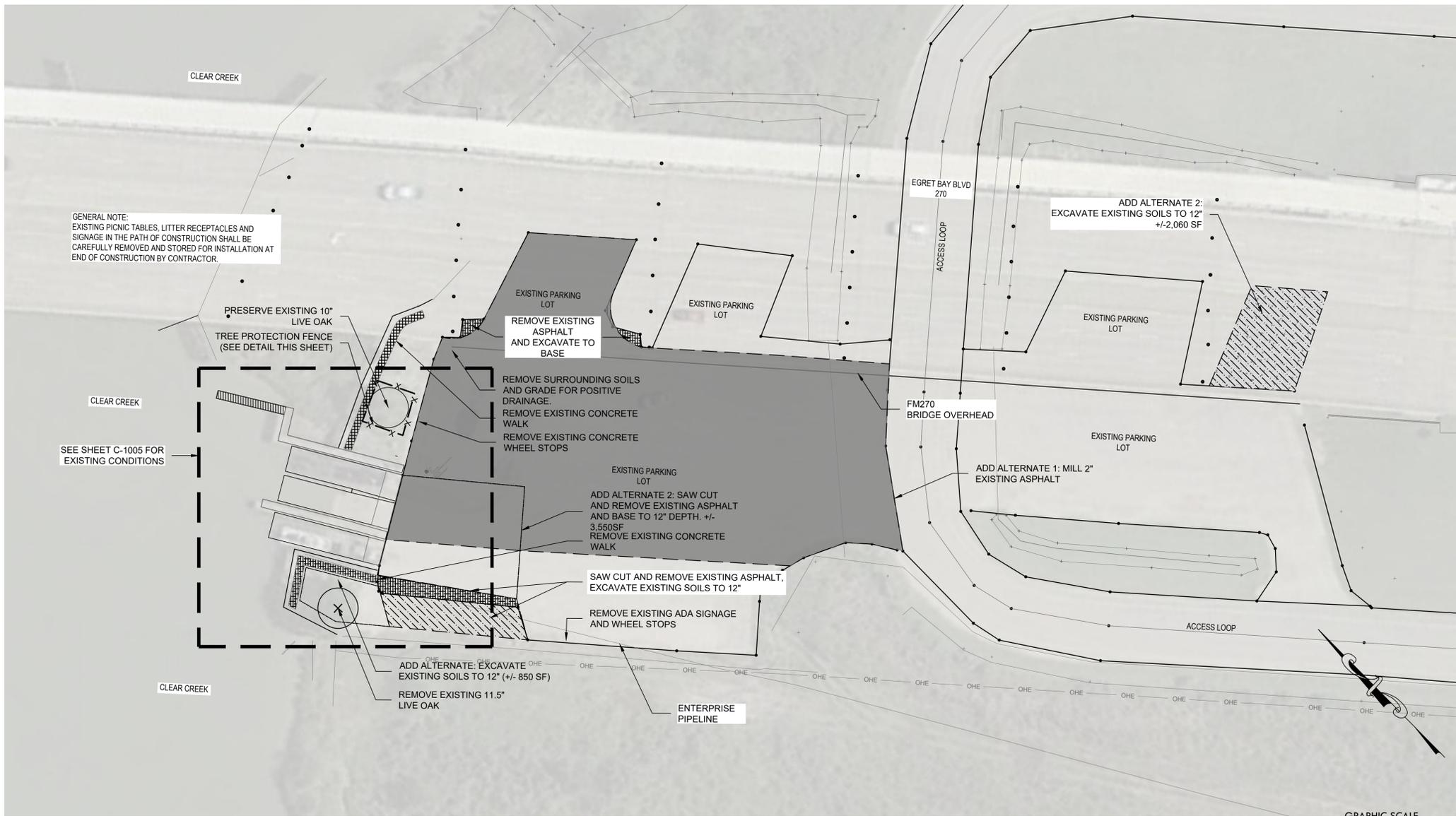
**A3 FRONT VIEW - TREE PROTECTION FENCING**

N.T.S.

**\*\*\* LEGEND \*\*\***

	REMOVAL TREE (1)
	TREE PROTECTION FENCING +/- 85LF EXCAVATE EXISTING SOILS TO 12"
	REMOVE EXISTING ASPHALT AND BASE +/- 565SF
	REMOVE EXISTING CONCRETE WALK +/- 550SF
	MILL AND REPAIR (VARIABLE THICKNESS) +/- 27,750SF

- GENERAL NOTES**
1. CONTRACTOR SHALL NOTIFY THE CITY OF LEAGUE CITY TWO (2) WORKING DAYS IN ADVANCE OF STARTING CONSTRUCTION AND SHALL COORDINATE NECESSARY INSPECTIONS THROUGHOUT FINAL APPROVAL.
  2. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES, TREES AND IMPROVEMENTS.
  3. ANY DAMAGE TO EXISTING FACILITIES OR IMPROVEMENTS, RESULTING FROM THE CONTRACTOR'S OPERATION, SHALL BE REPAIRED OR REPLACED AT CONTRACTOR'S EXPENSE.
  4. DURING THE COURSE OF THE WORK, CONTRACTOR SHALL COORDINATE AND ACCOMMODATE OTHER CONTRACTORS OR OPERATIONS OF THE OWNER.
  5. CONTRACTOR SHALL RESTRICT ALL OPERATIONS WITHIN THE PROJECT BOUNDARIES. ANY DISRUPTION TO NATIVE LANDSCAPES, OUTSIDE OF PROJECT BOUNDARIES, SHALL BE RESTORED AT NO COST TO THE OWNER.
  6. THE CONTRACTOR SHALL EMPLOY ALL LABOR, EQUIPMENT, AND METHODS REQUIRED TO PREVENT HIS OPERATIONS FROM PRODUCING DUST IN AMOUNTS DAMAGING TO PROPERTY, CULTIVATED VEGETATION, AND DOMESTIC ANIMALS OR CAUSING A NUISANCE TO PERSONS OCCUPYING BUILDINGS IN THE VICINITY OF THE JOB SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY DUST RESULTING FROM HIS OPERATIONS.
  8. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT "UNDERGROUND LOCATE SERVICE" PRIOR TO THE START OF CONSTRUCTION FOR LOCATION OF POWER, GAS, OIL, CABLE TV, AND TELEPHONE UNDERGROUND FACILITIES. THE CONTRACTOR WILL ALSO BE RESPONSIBLE FOR CONTACTING THE APPROPRIATE PUBLIC AGENCY FOR LOCATION OF ALL UNDERGROUND FACILITIES AT APPROPRIATE TIMES WITHIN PROJECT CONSTRUCTION SCHEDULE.
  9. CONTRACTOR SHALL BE REQUIRED TO PROVIDE INSTALLATION METHODS FOR SIGNAGE (EXAMPLES OF INSTALLATION METHODS ARE: MIXED BY HAND AT SIGN LOCATIONS, USING MIXER WITH WHEELBARROW, OR CONCRETE TRUCK). CONTRACTOR SHALL BE REQUIRED TO FOLLOW LEAGUE CITY'S LESS THAN ONE-ACRE STORMWATER POLLUTION PREVENTION PLAN (SWP3) FOR THE CONCRETE WORK. CONTRACTOR SHALL BE REQUIRED TO PROVIDE BEST MANAGEMENT PRACTICES (BMP'S) FOR ALL CONCRETE WORK.
  10. ALL CUT MATERIAL SHALL BE HAULED OFF SITE.
  11. CONTRACTOR SHALL MAINTAIN ALL EQUIPMENT AND CONSTRUCTION AWAY FROM CRITICAL ROOT ZONES OF EXISTING TREES. IF THIS CANNOT BE AVOIDED, THE CONTRACTOR SHALL IMPLEMENT TREE PRESERVATION STRATEGIES AS AND FOLLOW RECOMMENDATIONS FROM CITY ARBORIST AS SEEN APPROPRIATE PER SITE.

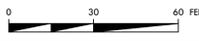


GENERAL NOTE:  
EXISTING PICNIC TABLES, LITTER RECEPTACLES AND SIGNAGE IN THE PATH OF CONSTRUCTION SHALL BE CAREFULLY REMOVED AND STORED FOR INSTALLATION AT END OF CONSTRUCTION BY CONTRACTOR.

PRESERVE EXISTING 10" LIVE OAK  
TREE PROTECTION FENCE (SEE DETAIL THIS SHEET)

SEE SHEET C-1005 FOR EXISTING CONDITIONS

GRAPHIC SCALE



SCALE 1"=30'-0"

**A1 SITE DEMOLITION PLAN**

FM 270 PUBLIC BOAT RAMP  
2913 MARINER DRIVE  
LEAGUE CITY, TEXAS 77573

1 INCH  
IF THIS LINE DOES NOT MEASURE ONE INCH THIS DRAWING IS NOT TO SCALE AND SHOULD NOT BE SCALED FOR DIMENSIONAL INFORMATION.

PROJECT NUMBER:  
1144.003  
ISSUE DATES:  
12.28.2022- ISSUE FOR BID & PERMITTING

DRAWN BY:  
CTW, PDK

CHECKED BY:  
CTW

SHEET NO.:

**L0.01**

DEMOLITION PLAN



FM 270 PUBLIC BOAT RAMP  
2913 MARINER DRIVE  
LEAGUE CITY, TEXAS 77573

1 INCH  
IF THIS LINE DOES NOT MEASURE ONE  
INCH THIS DRAWING IS NOT TO SCALE  
AND SHOULD NOT BE SCALED FOR  
DIMENSIONAL INFORMATION.

PROJECT NUMBER:

1144.003

ISSUE DATES:

12.28.2022- ISSUE FOR BID &

PERMITTING

DRAWN BY:

CTW, PKD

CHECKED BY:

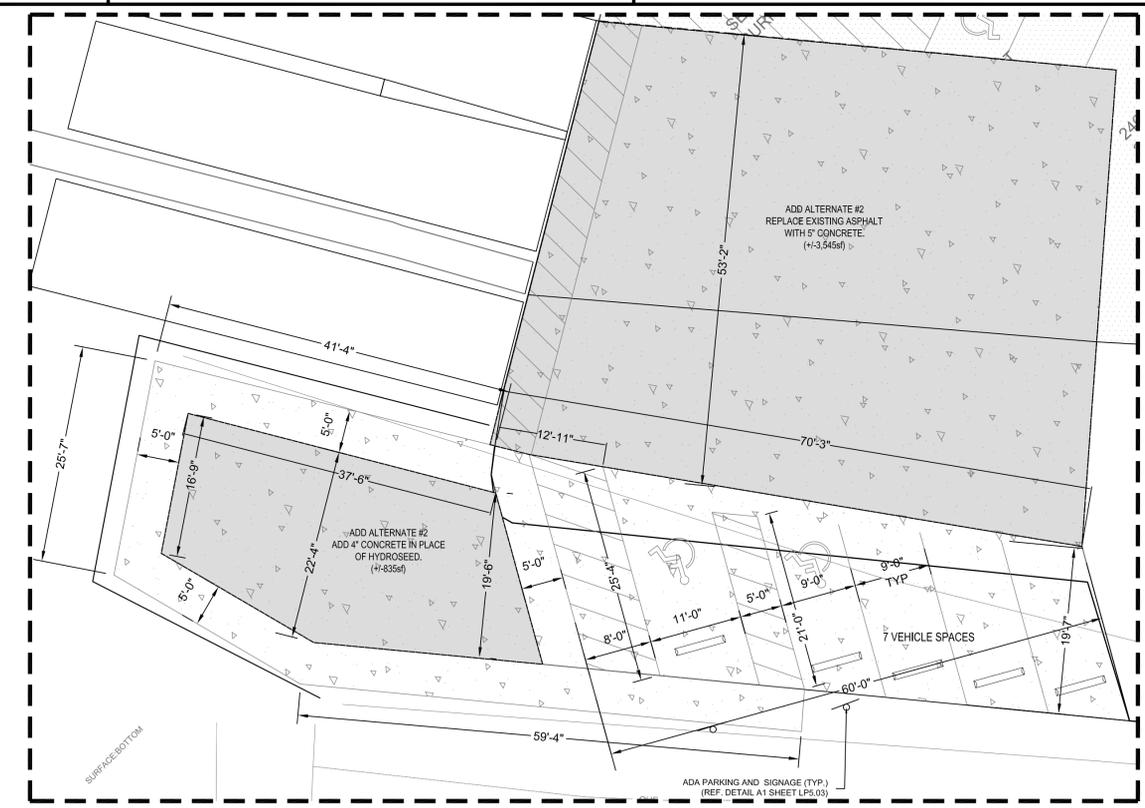
CTW

SHEET NO.:

LP1.00

SITE PLAN

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**ENLARGED SITE PLAN (ADD ALT # 2)**  
SCALE 1"=10'-0"

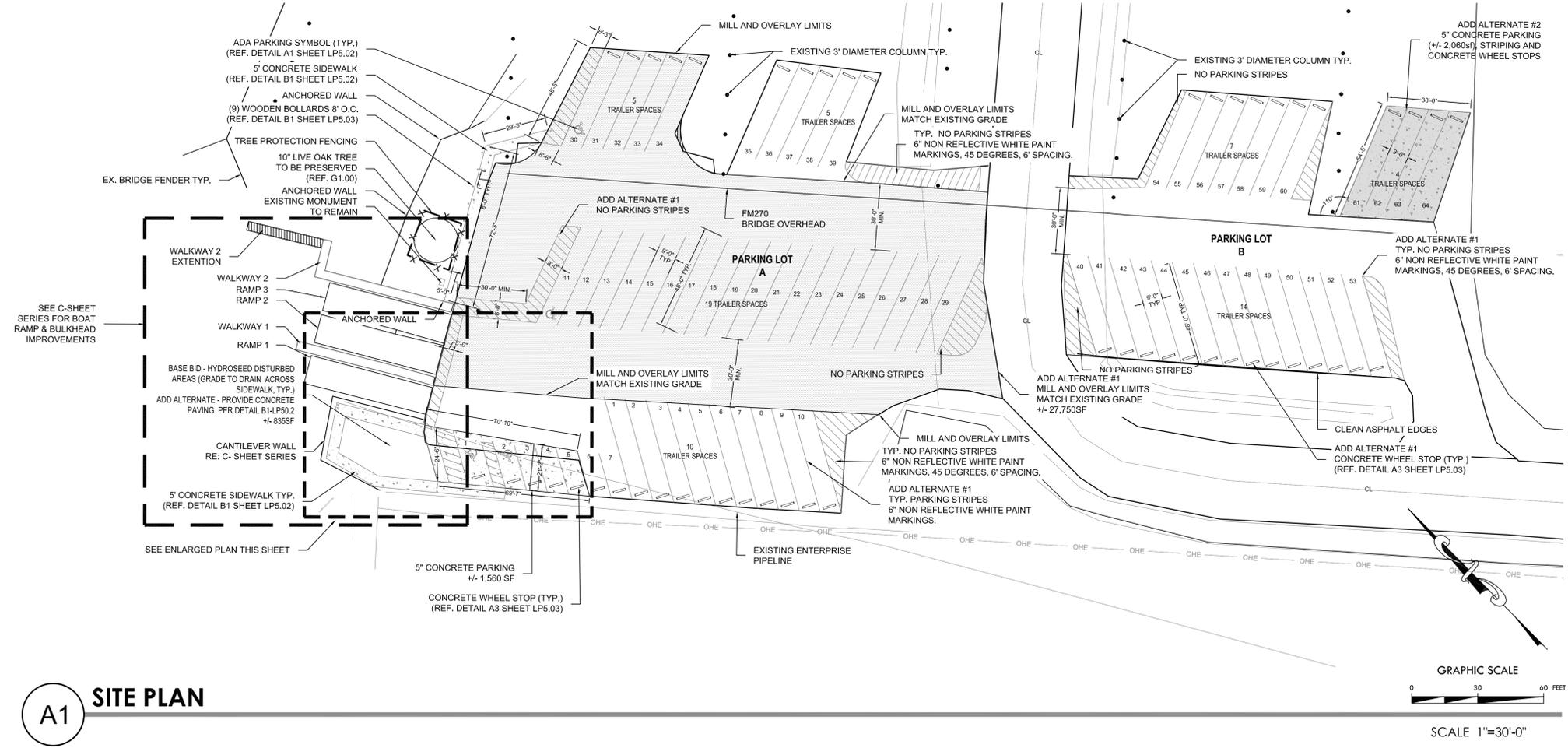
\*\*\* LEGEND \*\*\*

	ASPHALT HMA OVERLAY PER TXDOT STANDARDS +/- 27,750SF
	CONCRETE PAVING +/- 2,700SF
	ADD ALTERNATE CONCRETE PAVING +/- 6,440SF

**ALTERNATES**

**ALTERNATE #1**  
Parking A - Mill and overlay existing parking (+/- 27,750sf), new stripping and installation of new concrete wheel stops.  
Parking B - Remove existing stripping, re-stripe, and install new concrete wheel stops.

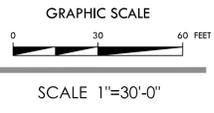
**ALTERNATE #2**  
In lieu of hydroseed, install base and concrete paving per detail. (+/- 835sf) Reference B1 sheet LP5.02.  
**PARKING A**  
In lieu of asphalt overlay, install base and 5" concrete paving per detail. (+/- 3,545sf) Reference C2 sheet LP5.02  
**PARKING B** - Install base and 5" concrete paving. (+/-2,060sf)



**A1 SITE PLAN**

**GRADING & EXCAVATION NOTES:**

- Any existing and / or on-site conditions which vary from those shown on drawings shall be immediately brought to the attention of the owner's representative.
- The contractor shall be responsible for verifying the actual location and elevation in the field prior to beginning construction of the new amenities. The contractor shall protect all existing utilities encountered during construction.
- The debris created by removal operations shall become the property of the contractor and shall be legally disposed of away from the job site. Subsoil shall not be reused for topsoil.
- General contractor shall establish smooth and uniform grades with a maximum slope of 3:1 unless otherwise noted. Tie into existing adjacent grades smoothly and fine grade for positive drainage and to prevent water from standing. Cut swales to direct water away from all structures and property lines, and towards storm sewer inlets or ditches and culverts. Do not drain any water towards lots, easements, or buildings.
- If there are clumps larger than 1" in diameter after topsoil is spread out over site, contractor to lightly proofroll the topsoil to break up and smooth out finished surface in preparation for hydromulch or solid sod. Final soil surface around the site should be smooth just before sod or hydromulch is installed. Contractor is responsible for filling in "erosion veins", tire tracks, or other disturbances to an otherwise smooth and uniform finished grade surface just prior to grass installation.
- Contractor is responsible for backfilling behind all curbs, sidewalks, and structures to have positive drainage everywhere on site. Any "birdbaths" or standing puddles to be filled in and fine graded for positive drainage over entire site. Any area around the site that puddles water where it should have positive drainage will not be accepted. All sides of outfall swales are to be compacted 95% proctor. All earthwork to be performed in maximum 8" lifts, compacting and testing each lift. Geotechnical materials testing by a qualified agency must be performed regularly and often on each lift of backfill with reports outlining results of testing before subsequent earth lifts or pavement is placed or final topsoil is installed. Reports must be submitted to client representative within 48 hours of testing for approval.
- Once final grades have been achieved contractor is responsible for maintaining smooth finished surface until topsoil, and final sod/hydromulch have been installed. Any erosion from weather on bare, exposed soil to be fine graded again to fill in erosion veins and excavate sediment piles at contractors' expense.



GENERAL NOTES: 12-2022

- 1. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE CITY OF LEAGUE CITY GENERAL DESIGN AND CONSTRUCTION STANDARDS AND THE CITY OF LEAGUE CITY STANDARD DETAILS AS CURRENTLY AMENDED. CONTRACTOR SHALL OBTAIN (AND USE) COPY FROM THE CITY OF LEAGUE CITY.
- 2. THERE WILL BE NO SEPARATE PAYMENT FOR WORK SHOWN ON THESE PLANS, UNLESS SPECIFICALLY ESTABLISHED IN THE BID PROPOSAL SECTION OF THE CONTRACT DOCUMENTS. INCLUDE COST OF THIS WORK IN THE CONTRACT UNIT PRICE FOR ITEMS OF WHICH THIS WORK IS A COMPONENT OR INCIDENTAL.
- 3. EXISTING UTILITY INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE AND ALL INCLUSIVE. ALL EXISTING UTILITY LOCATIONS ARE APPROXIMATE AND SHOULD BE VERIFIED BY THE CONTRACTOR IN ADVANCE OF HIS CONSTRUCTION. ANY CONFLICT OR DISCREPANCY DISCOVERED MUST IMMEDIATELY BE BROUGHT TO THE ENGINEER'S ATTENTION.
- 4. ANY DAMAGE TO EXISTING PUBLIC UTILITIES MUST BE REPAIRED IMMEDIATELY. THE CONTRACTOR MUST NOTIFY THE APPROPRIATE UTILITY OWNER, WHO WILL MAKE THE REPAIRS AT THE CONTRACTOR'S EXPENSE.
- 5. THE CONTRACTOR ON BEHALF OF THE OWNER, SHALL OBTAIN ALL CONSTRUCTION PERMITS PRIOR TO THE COMMENCEMENT OF WORK.
- 6. THE WORK AREA SHALL BE BARRICADED AND ILLUMINATED DURING DARKNESS AND PERIODS OF INACTIVITY, WHEN IN AN AREA OF DIRECT PUBLIC ACCESS.
- 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STORAGE OF MATERIAL AND EQUIPMENT IN A SAFE AND WORKMAN LIKE MANNER TO PREVENT INJURIES, DURING AND AFTER WORKING HOURS UNTIL PROJECT COMPLETION. THERE SHALL BE NO PAYMENT MADE TO THE CONTRACTOR FOR STORED MATERIAL.
- 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SHIPPING OF ALL MATERIALS. THE LOADING AND UNLOADING OF ALL PIPE, VALVES, HYDRANTS, MANHOLES AND OTHER ACCESSORIES SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDED PRACTICES AND SHALL AT ALL TIMES BE PERFORMED WITH CARE TO AVOID ANY DAMAGE TO THE MATERIAL. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO EXAMINE SUCH MATERIAL AT THE POINT OF DELIVERY AND TO REJECT ALL DEFECTIVE MATERIAL. THE DEFECTIVE MATERIAL MUST BE REPLACED WITH SOUND MATERIAL.
- 9. ALL PIPE AND REINFORCEMENT STEEL SHALL BE KEPT FREE OF DIRT AND OTHER DEBRIS. ANY DAMAGE TO THE COATING OF THE VARIOUS MATERIALS MUST BE REPAIRED.
- 10. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ADEQUATE AND POSITIVE DRAINAGE AND TO INSURE NO BLOCKAGE OF EXISTING DRAINAGE WAYS AT ALL TIMES DURING CONSTRUCTION OF PROPOSED FACILITIES. NATURAL GROUND ADJACENT TO UTILITY TRENCH EXCAVATION TO BE GRUBBED PRIOR TO PLACEMENT OF EXCESS TRENCH MATERIAL. (NO SEPARATE PAY).
- 11. ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
- 12. THE CONTRACTOR IS REQUIRED TO FOLLOW ALL APPLICABLE OSHA RULES AND REGULATIONS. TRENCH SAFETY SHALL BE DONE IN ACCORDANCE WITH OSHA 29 CFR PART 1926, AS PUBLISHED IN THE FEDERAL REGISTER OCTOBER 31, 1989, AND EFFECTIVE JANUARY 2, 1990, AND AMENDMENTS THERETO.
- 13. NO CONNECTIONS SHALL BE MADE TO THE EXISTING WATER LINES OR SANITARY SEWERS UNTIL ALL PROPOSED LINES OR SEWERS HAVE BEEN THOROUGHLY CLEANED, TESTED, AND APPROVED BY THE ENGINEER.
- 14. ALL GEOTECHNICAL REPORTS (IF ANY) FOR THIS PROJECT ARE AVAILABLE AT THE OFFICE OF THE ENGINEER.
- 15. SURFACE RESTORATION: AT THE END OF ALL CONSTRUCTION PROJECTS, THE CONTRACTOR SHALL RESTORE THE EXISTING FACILITIES, I.E., THE PROPERTY, INCLUDING DITCH, EQUAL TO OR BETTER THAN EXISTING SITE CONDITIONS PRIOR TO CONSTRUCTION. ALL DISTURBED AREA SHALL BE SEEDED PROPERLY.
- 16. FINAL ACCEPTANCE OF THE UTILITIES WILL NOT BE GIVEN TO THE CONTRACTOR UNTIL THEY ARE INSPECTED AND APPROVED BY THE CITY OF LEAGUE CITY.
- 17. ALL MANHOLES ARE TO BE CONSTRUCTED TO ALLOW FOR A MINIMUM OF 1 FOOT OF VERTICAL ADJUSTMENT.
- 18. ALL TRENCH EXCAVATION, BEDDING AND BACKFILL SHALL BE IN CONFORMANCE WITH THE CITY OF LEAGUE CITY STANDARD DETAILS - EXCAVATION AND BACKFILL FOR UTILITIES AND UTILITY BACKFILL MATERIAL SPECS.
- 19. ALL UTILITY TRENCHES UNDER OR WITHIN THREE FEET OF EXISTING, PROPOSED, AND/OR FUTURE PAVEMENT OR CURB SHALL BE BACKFILLED WITH NO LESS THAN 1-1/2 SACKS OF CEMENT PER TON OF CEMENT-STABILIZED SAND TO A POINT ONE FOOT BELOW PAVEMENT SUBGRADE. THE REMAINING BACKFILL SHALL BE MADE WITH COMPACTED SUITABLE MATERIAL.
- 20. THE USE OF WELL POINT SYSTEMS, WHEN REQUIRED BY TRENCH CONDITIONS, SHALL BE REQUESTED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER.
- 21. CONTRACTOR SHALL PROTECT ALL TREES ADJACENT TO WORK AREA. NO TREES SHALL BE REMOVED WITHOUT PERMISSION OF OWNER.
- 22. CONTRACTOR SHALL PROVIDE MINIMUM CLEARANCES AT STORM SEWER, SANITARY SEWER AND WATER LINE CROSSINGS AS DESIGNED PER THE PLANS AND ACCORDING TO THE BEDDING AND BACKFILL DETAILS.
- 23. ALL AREAS DISTURBED ALONG SIDE AND BACK-OF-LOT EASEMENTS OR OTHER UNNECESSARY DISTURBANCES AS A RESULT OF CONSTRUCTION WORK SHALL BE SEEDED AND FERTILIZED IN ACCORDANCE WITH SEEDING SPECIFICATIONS (NO SEPARATE PAY).
- 24. EXCAVATE MUCK, ORGANIC MATERIAL AND UNSUITABLE SOIL PRIOR TO PLACING FILL. PLACE SUITABLE MATERIAL IN 8" MAXIMUM LOOSE LIFT AND COMPACT TO 95% STANDARD PROCTOR DENSITY.
- 25. ALL BACKFILL SHALL BE PLACED IN 8" LIFTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY AND BE TESTED BY AN APPROVED TESTING LAB.
- 26. ALL TRENCH BACKFILL SHALL HAVE AT LEAST ONE DENSITY TESTING ON EACH LIFT. ONLY STANDARD BACKFILL PROCEDURES ARE ALLOWED. ANY DEVIATION FROM THIS STANDARD MUST BE APPROVED BY THE CITY OF LEAGUE CITY.
- 27. EXCEPT FOR WATER AND SANITARY SEWER FACILITIES, ALL PROPOSED FACILITIES MUST BE INSTALLED WITH A MINIMUM SEPARATION OF 4 FEET OUTSIDE TO OUTSIDE FROM ALL OTHER EXISTING OR PROPOSED FACILITIES.
- 28. ALL TESTING PROCEDURES USED ON THIS PROJECT SHALL CONFORM TO THE CITY OF LEAGUE CITY STANDARDS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TESTS REQUIRED. IF ANY TEST RESULTS DO NOT MEET THE TESTING STANDARDS, SUCH MATERIAL SHALL BE REMOVED AND REPLACED SO THAT THE TESTING STANDARDS CAN BE MET. COST OF TEST AND LABORATORY SERVICES SHALL BE INCIDENTAL AND INCLUDED IN UNIT PRICE OF BID ITEM. A COPY OF THE TEST RESULTS SHALL BE SUBMITTED TO THE ENGINEER AND THE CITY OF LEAGUE CITY.
- 29. ALL UNSATISFACTORY AND OR WASTE MATERIALS INCLUDING VEGETATION, ROOTS, CONCRETE AND DEBRIS SHALL BE DISPOSED OF OFFSITE BY THE CONTRACTOR, IN 100 YR AND 500 YR FLOOD ZONES EXCESS SPOIL DIRT SHALL BE REMOVED OFFSITE TO AN APPROVED LOCATION OR AS SHOWN PER ENGINEERED PLAN, NO DIRECT PAYMENT WILL BE MADE, BUT SHALL BE CONSIDERED AS INCIDENTAL TO THE VARIOUS BID PROPOSAL ITEMS.
- 30. UTILITY CONTRACTOR SHALL ADJUST RIM ELEVATIONS TO 0.3 FEET ABOVE THE FINISHED GRADE AT EACH MANHOLE LOCATION AFTER PAVEMENT CONTRACTOR HAS COMPLETED FINAL GRADING (NO SEPARATE PAY). SLOPED FILL SHALL BE ADDED FOR STORM WATER DRAINAGE AWAY FROM THE MANHOLE RIM.
- 31. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING DEVICES, ETC., DURING CONSTRUCTION BOTH DAY AND NIGHT IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
- 32. UTILITY CONTRACTOR SHALL AT COMPLETION OF HIS WORK FILL AND GRADE ALL UTILITY EASEMENTS (WET AND DRY) FOR POSITIVE DRAINAGE, AS DIRECTED BY THE OWNER. (NOT SEPARATE PAY)
- 33. CITY OF LEAGUE CITY SIGNATURES ARE VALID FOR 1 (ONE) YEAR ONLY AFTER DATE & SIGNING OF PLANS.
- 34. UTILITY CONTRACTOR SHALL PROVIDE TEMPORARY SILT BARRIER FENCE ON ALL NON-CURB INLETS WHICH WILL REMAIN IN PLACE AFTER UNDERGROUND CONTRACT IS COMPLETE.

- 35. CONTRACTOR SHALL CONTACT THE FOLLOWING A MINIMUM OF 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
  - A) FOR CIP - CITY OF LEAGUE CITY PROJECT MANAGEMENT (281)-554-1436
  - B) FOR SUBDIVISION INFRASTRUCTURE - ENGINEERING DEPT (281)-554-1439
  - C) CITY OF LEAGUE CITY FIRE MARSHALL (281)-554-1290
  - D) TEXAS ONE CALL SYSTEM 1-800-245-4545
  - E) LONE STAR NOTIFICATION CENTER 1-800-669-8344
  - F) TEXAS EXCAVATION SAFETY SYSTEM INC. 1-800-344-8377
  - G) EL PASO PIPELINE : MR. J.R. LOGAN (281)-331-4693
  - H) BP PIPELINE : MR. DARREL BARBO (409)-938-6995 (MOBIL) (281)-636-6747
- 36. CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES AND PAVEMENT BEFORE CONSTRUCTION. ANY VERIFICATIONS THAT ARE INCONSISTENT WITH THE PLANS NEED TO BE REPORTED TO THE ENGINEER BEFORE CONSTRUCTION BEGINS.
- 37. WITH CITY ENGINEERS APPROVAL, W. S. & D. SPOIL MAY BE SPREAD EVENLY IN THE STREET RIGHT-OF-WAY AFTER UTILITIES ARE IN PLACE.
- 38. THERE WILL BE NO ADDITIONAL COST FOR INSTALLING WATER LINES AND SEWERS UNDER EXISTING UTILITIES AND PIPELINE. INCLUDE COST OF THIS WORK IN THE CONTRACT UNIT PRICE FOR ITEMS OF WHICH THIS WORK IS A COMPONENT OR INCIDENTAL.
- 39. LAWS TO BE OBSERVED, THE DEVELOPER/CONTRACTOR SHALL MAKE HIMSELF FAMILIAR WITH AND AT ALL TIMES SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES, AND REGULATIONS WHICH IN ANY MANNER AFFECT THE CONDUCT OF THE WORK AND SHALL INDEMNIFY AND SAVE HARMLESS THE CITY AND ITS REPRESENTATIVES AGAINST ANY CLAIM ARISING FROM THE VIOLATION OF ANY SUCH LAW, ORDINANCE, OR REGULATIONS, WHETHER BY HIMSELF OR BY HIS EMPLOYEES.
- 40. CONTRACTOR SHALL REMOVE ALL MUD, DIRT, AND DEBRIS DEPOSITED ON EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY DAILY.
- 41. CONTRACTOR SHALL CONTACT THE WATER UTILITY DEPARTMENT AT 281-554-1390 TO COORDINATE VALVE OPERATIONS FOR PROPOSED TIE-INS.
- 42. DISPOSAL OF EXCESS EXCAVATION MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. DISPOSAL OF EXCESS EXCAVATION MATERIAL WITHIN LEAGUE CITY SHALL COMPLY WITH ORDINANCE 2009-25 ARTICLE 2.
- 43. FOR 2-LANE 2-WAY ASPHALT MILL AND OVERLAY PROJECTS, CONTRACTOR IS TO MILL AND OVERLAY 1/2 LANE WIDTH AT A TIME. FOR ROADWAYS WITH MULTIPLE LANES, CONTRACTOR IS TO COORDINATE WITH LEAGUE CITY PROJECT MANAGER.
- 44. FOR PRIVATE DEVELOPMENT: AS NOTED IN ORDINANCE NO. 2018-46, AN OVERTIME RATE OF \$50/HOUR WITH A 2-HOUR MINIMUM FEE WILL BE CHARGED FOR CITY INSPECTOR'S TIME DURING THE CONSTRUCTION OF PUBLIC INFRASTRUCTURE. AS NOTED IN THIS ORDINANCE, THERE ARE 2 OPTIONS FOR PAYMENT OF THE INCURRED OVERTIME COST: 1) THE DEVELOPER MAY DEPOSIT \$500.00 WITH THE CITY PRIOR TO THE PRE-CONSTRUCTION MEETING. IN THIS CASE, THE CITY WOULD REFUND ANY UNUSED FUNDS TO THE DEVELOPER AFTER CITY PROJECT ACCEPTANCE. ANY BALANCE DUE TO THE CITY MUST BE PAID PRIOR TO CITY ACCEPTANCE OF THE PROJECT. 2) THE DEVELOPER MAY OPT TO BE BILLED MONTHLY OR PRIOR TO CITY PROJECT ACCEPTANCE. THE CITY'S ENGINEERING DEPARTMENT MUST BE NOTIFIED BY 12:00 PM ON THURSDAY IF ANY PUBLIC INFRASTRUCTURE WORK IS PLANNED FOR THE WEEKEND

PAVING CONSTRUCTION NOTES: 12-2022

- 1. GUIDELINES SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE OBSERVED.
- 2. ALL RETURNS HAVE 25' RADIUS AT BACK OF CURB UNLESS OTHERWISE NOTED.
- 3. WHEN THE TOP OF CURB ELEVATION OR BOTTOM OF PAVEMENT SLAB IS ABOVE NATURAL GROUND, THE PAVING CONTRACTOR SHALL BACKFILL FROM THE NATURAL GROUND TO TOP OF CURB IN LAYERS NOT EXCEEDING 8 INCHES IN DEPTH AND EACH LAYER COMPACTED TO NOT LESS THAN 95% STANDARD PROCTOR DENSITY AND SHALL FILL FROM CURB TO EDGE OF TREELINE. (NO SEPARATE PAY)
- 4. PAVING CONTRACTOR SHALL PROTECT WATER, SEWER, AND DRAINAGE FACILITIES; AND WILL REPLACE AT HIS EXPENSE ANY FACILITIES DAMAGED DURING PAVING OPERATIONS. ALL MANHOLES AND VALVES FALLING WITHIN PAVEMENT AREA SHALL BE ADJUSTED TO FINISHED GRADE BY PAVING CONTRACTOR WITHOUT THE USE OF BLOCKOUTS WHEN DIRECTED BY OWNER (WITH NO SEPARATE PAY).
- 5. PAVING SHALL BE IN ACCORDANCE WITH THE CITY OF LEAGUE CITY GENERAL DESIGN AND CONSTRUCTION STANDARDS AND THE CITY OF LEAGUE CITY STANDARD DETAILS AS CURRENTLY AMENDED.
- 6. EXISTING PAVEMENTS, CURBS, SIDEWALKS, AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO CITY OF LEAGUE CITY STANDARDS.
- 7. CONDITION OF THE ROAD AND / OR RIGHT-OF-WAY, UPON COMPLETION OF JOB, SHALL BE AS GOOD AS OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK.
- 8. ALL ROAD WIDTHS, CURB RADII, AND CURB ALIGNMENT SHOWN INDICATE BACK OF CURB. T.C. INDICATES TOP OF CURB. T.P. INDICATES TOP OF PAVEMENT ELEVATIONS.
- 9. DOUBLE REFLECTORIZED BLUE TRAFFIC MARKERS SHALL BE PLACED 1 FOOT OFFSET OF THE CENTERLINE AT ALL FIRE HYDRANT LOCATIONS BY THE PAVING CONTRACTOR. HYDRANTS LOCATED AT INTERSECTIONS SHALL HAVE A BUTTON PLACED ON EACH STREET. NO EXTRA PAY.
- 10. AREAS TO RECEIVE FILL SHALL BE STRIPPED 4 INCHES AND SCARIFIED PRIOR TO FILL PLACEMENT. PAVEMENT FILL SHALL BE COMPACTED TO A MINIMUM 95% MAXIMUM DENSITY PER ASTM D698 IN MAXIMUM 8" LOOSE LIFTS
- 11. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 80 FEET.
- 12. THE SUBGRADE IS TO BE SCARIFIED TO A DEPTH DETERMINED BY TEST LAB, WITH LIME OR CEMENT STABILIZE AS DETERMINED BY LAB RESULTS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY PER ASTM D698 OR ASTM D1557.
- 13. WHEN A 6 INCH THICK CONCRETE ROADWAY INTERSECTS WITH A 7 INCH THICK CONCRETE ROADWAY, 7 INCH THICK CONCRETE SHALL BE CONSTRUCTED FOR THE ENTIRE INTERSECTION TO THE ENDS OF ALL CURB RETURNS.
- 14. AREAS TO BE FILLED SHALL BE SCARIFIED AND COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY PER ASTM D-698, TO A DEPTH OF 8 INCHES PRIOR TO FILL PLACEMENT. FILL MATERIAL SHALL BE PLACED IN MAXIMUM 8 INCH THICK LOOSE LIFTS AND COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY AS PER ASTM D-698. MOISTURE CONTENT SHALL BE WITHIN 2% OF OPTIMUM UNLESS OTHERWISE DIRECTED BY OWNER'S TESTING LAB OR THE ENGINEER. FILL SHALL BE CLEAN EARTH, SAND, OR A COMBINATION, AND BE FREE FROM TRASH, VEGETATION AND LARGE STONES.
- 15. A CONTINUOUS LONGITUDINAL REINFORCING BAR SHALL BE USED IN THE CURBS.
- 16. STREET NAME SIGNS TO BE STANDARD CITY OF LEAGUE CITY SIGNS AND INSTALLED BY CONTRACTOR. CONTACT CITY OF LEAGUE CITY STREET DEPARTMENT FOR EXAMPLE. CONTRACTOR TO VERIFY STREET NAME WITH APPROVED PLAT.
- 17. ALL EXCESS SUITABLE SOILS FROM WS&D AND PAVING CONSTRUCTION SHALL BE EVENLY APPLIED TO LOT AREAS IN ACCORDANCE WITH ITEM 15 OF THIS PAVING CONSTRUCTION NOTES, AND BE INCIDENTAL TO THE LOT GRADING ITEM OF THIS CONTRACT.
- 18. CONTRACTOR SHALL GET A COPY OF THE APPROVED PLAT TO DETERMINE THE CORRECT NAMES OF THE STREETS BEFORE ORDERING AND PLACING STREET SIGN NAMES.
- 19. SIDEWALKS FALLING WITHIN OR ADJACENT TO RESERVES PARALLEL WITH ROAD RITH-OF-WAYS AND ALL CROSS WALK RAMPS SHALL BE PLACED BY THE OWNERS CONTRACTOR.
- 20. FOR 2-LANE 2-WAY ASPHALT MILL AND OVERLAY PROJECTS, CONTRACTOR IS TO MILL AND OVERLAY 1/2 LANE WIDTH AT A TIME. FOR ROADWAYS WITH MULTIPLE LANES, CONTRACTOR IS TO COORDINATE WITH LEAGUE CITY PROJECT MANAGER.



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SEAL:



FM 270 PUBLIC BOAT RAMP  
2913 MARINER DRIVE  
LEAGUE CITY, TEXAS 77573

1 INCH  
IF THIS LINE DOES NOT MEASURE ONE INCH THIS DRAWING IS NOT TO SCALE AND SHOULD NOT BE SCALED FOR DIMENSIONAL INFORMATION.

PROJECT NUMBER:  
1144.003  
ISSUE DATES:  
12.28.2022- ISSUE FOR BID & PERMITTING  
02.14.2023- GEN NOTES

DRAWN BY:  
CTW, PDK

CHECKED BY:  
CTW

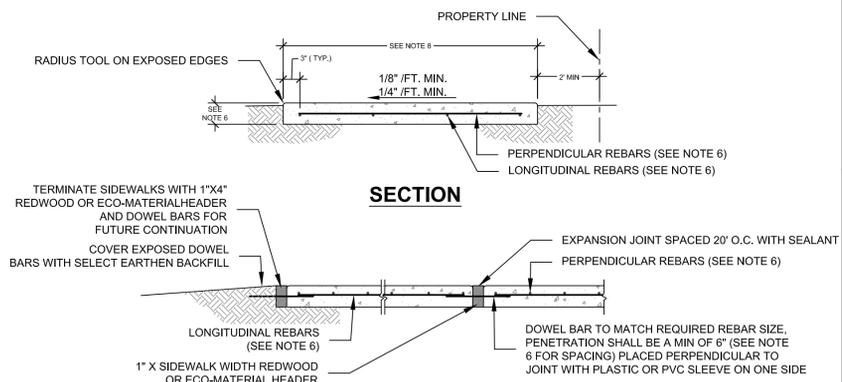
SHEET NO.:

LP5.01

GENERAL NOTES & PAVING NOTES  
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**ACCESSIBLE ROUTE GENERAL NOTES:**

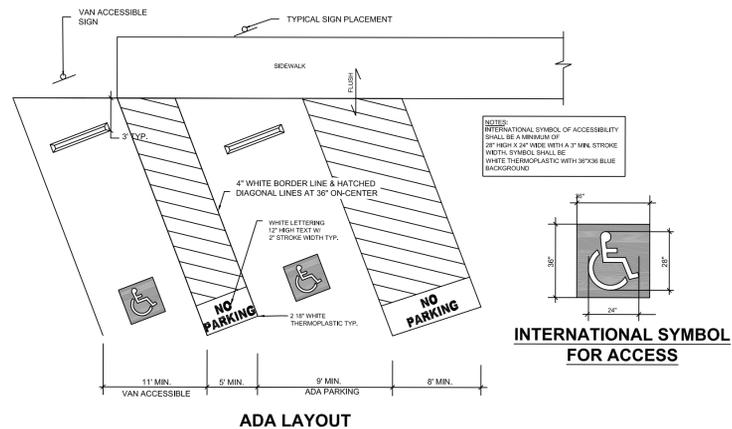
- The design and construction of all elements of pedestrian facilities shall meet the criteria established in the current edition of the Texas accessibility standards (t.a.s.), as prepared and administered by the Texas Department of Licensing and Regulation (TDLR), unless otherwise directed by the engineer.
- The cross slope of an accessible route and/or landing must not exceed 1:50 (2%). Any part of the accessible route with a slope greater than 1:20 (5%) shall be considered a ramp.
- A minimum width of 36 inches shall be provided for landings around obstructions (i.e. sign supports, signal supports, poles, etc.) located adjacent to the pedestrian route.
- Minimum 32 inches of clearance is required for obstructions less than 24 inches in length, and a minimum 36 inches of clearance is required for obstructions greater than or equal to 24 inches in length.



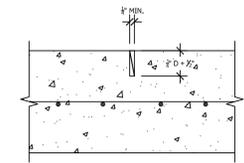
- NOTES:**
- EXPANSION JOINTS TO BE PLACED EVERY 20' AND CONTROL BREAK JOINT EVERY 10'.
  - EXPANSION JOINTS SHALL BE PLACED WHERE NEW WALKS MEET EXISTING CONCRETE STRUCTURES, FIRE HYDRANTS AND UTILITY POLES.
  - CONSTRUCT SIDEWALKS WITH 5 1/2 SACK PORTLAND CEMENT.
  - ALL EXPANSION JOINT TO BE SEALED WITH HOT POUR ELASTIC TYPE SEALER MEETING ASTM D1190 OR APPROVED EQUIV.
  - PROVIDE A MIN OF 1" OVERLAP ON REINFORCING.
  - SIDEWALK THICKNESS IN RESIDENTIAL DRIVEWAYS TO BE A MIN OF 4" WITH #3 REBAR REINFORCING ON 14" CENTERS LONGITUDINAL AND 18" CENTERS PERPENDICULAR. COMMERCIAL DRIVEWAYS SHALL HAVE A MIN THICKNESS OF 6" WITH #4 REBAR ON 18" CENTERS EACH WAY. SIDEWALKS SHALL MAINTAIN A ONE FOOT CLEARANCE FROM OUTER EDGE OF SIDEWALK TO OUTER EDGE OF ALL UTILITY STRUCTURES (i.e. VALVE BOXES, FIRE HYDRANT, MANHOLE, ETC.).
  - SIDEWALKS IN RESIDENTIAL AREAS SHALL BE A MIN WIDTH OF 4 FT. SIDEWALKS ALONG A COLLECTOR, MAJOR OR MINOR ARTERIAL STREET SHALL BE A MIN WIDTH OF 5 FT. EXCEPT FOR WHEN AN 8 FT OR LARGER SIDEWALK IS REQUIRED OR CALLED FOR PER PLANNING AND ZONING OR TRAIL MASTER PLAN REQUIREMENTS. SEE 8 FT AND LARGER SIDEWALK DETAIL.

**4' & 5' FT. SIDEWALK SECTION AND EXPANSION JOINT DETAIL**

**B1 CONCRETE WALK DETAIL** N.T.S.

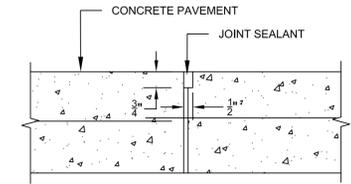


**A1 ADA PARKING** N.T.S.

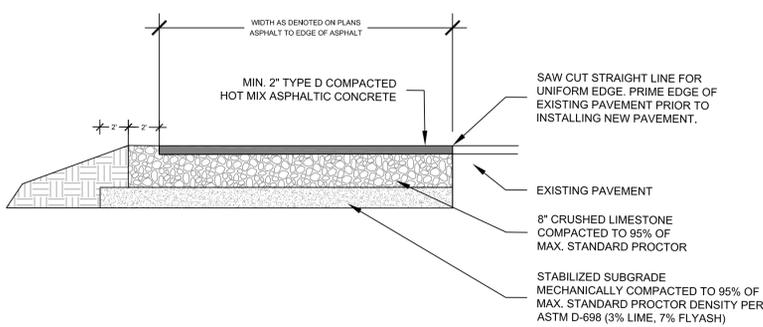


- NOTES:**
- DEPTH OF CONCRETE
  - SAW-CUT CONTRACTION JOINT TO DIMENSIONS SHOWN

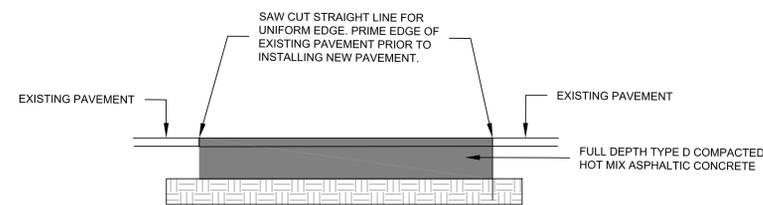
**D2 CONTRACTION JOINT** N.T.S.



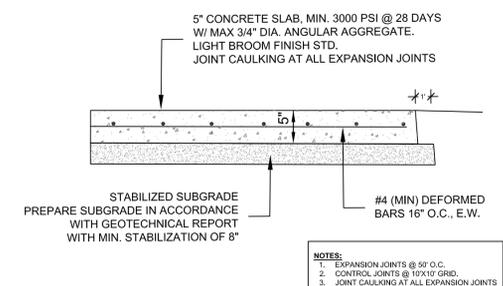
**D4 CONSTRUCTION JOINT** N.T.S.



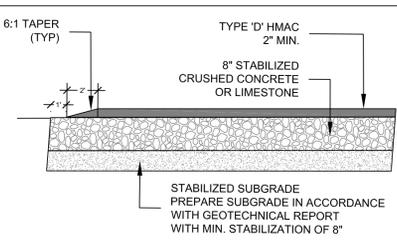
**C2 TYP. ASPHALT CONNECTION TO EX. PAVEMENT** N.T.S.



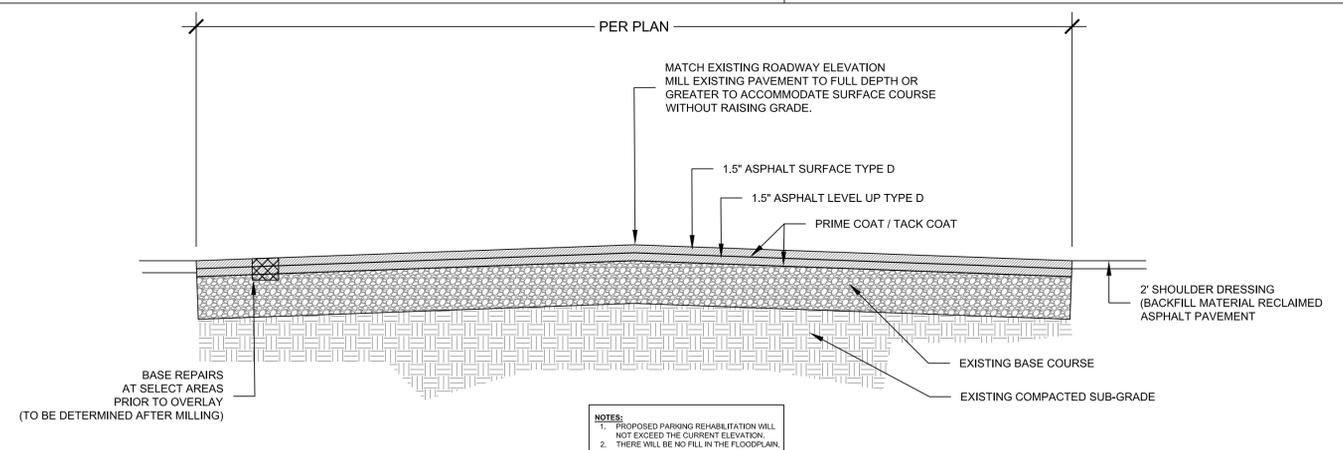
**B2 TYP. ASPHALT SPOT PAVEMENT REPAIR** N.T.S.



**C4 TYPICAL CONCRETE PAVING SECTION** N.T.S.



**B4 TYPICAL H.M.A.C. PAVING SECTION** N.T.S.



**A2 TYPICAL MILLING AND RESURFACING DETAIL** N.T.S.

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FM 270 PUBLIC BOAT RAMP  
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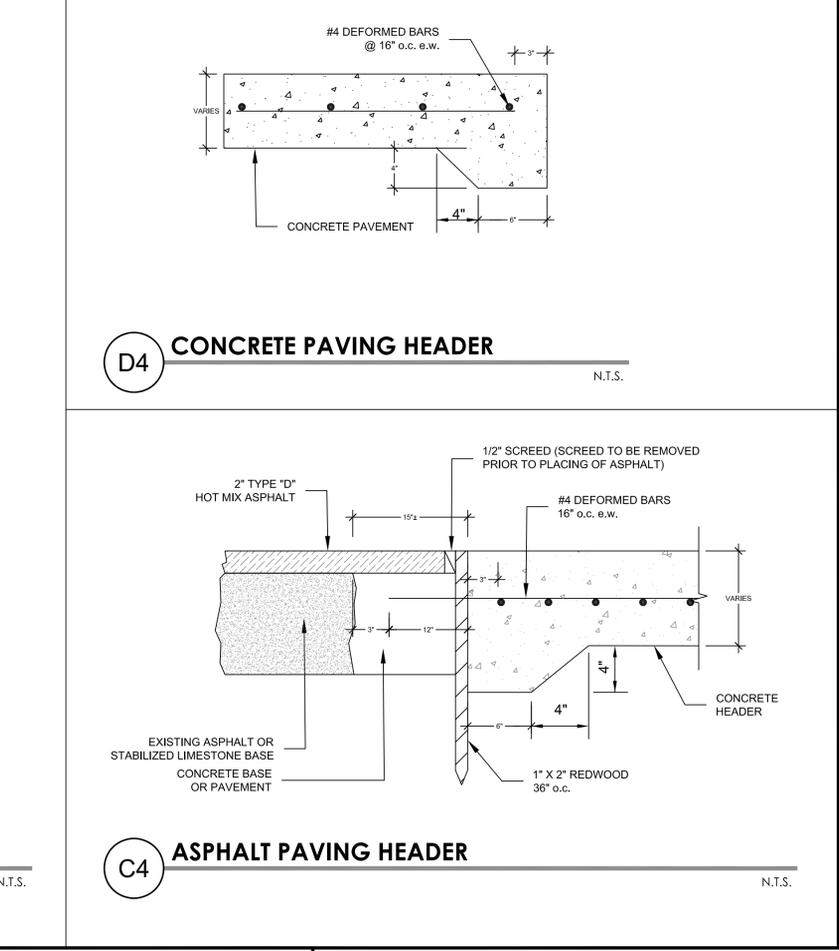
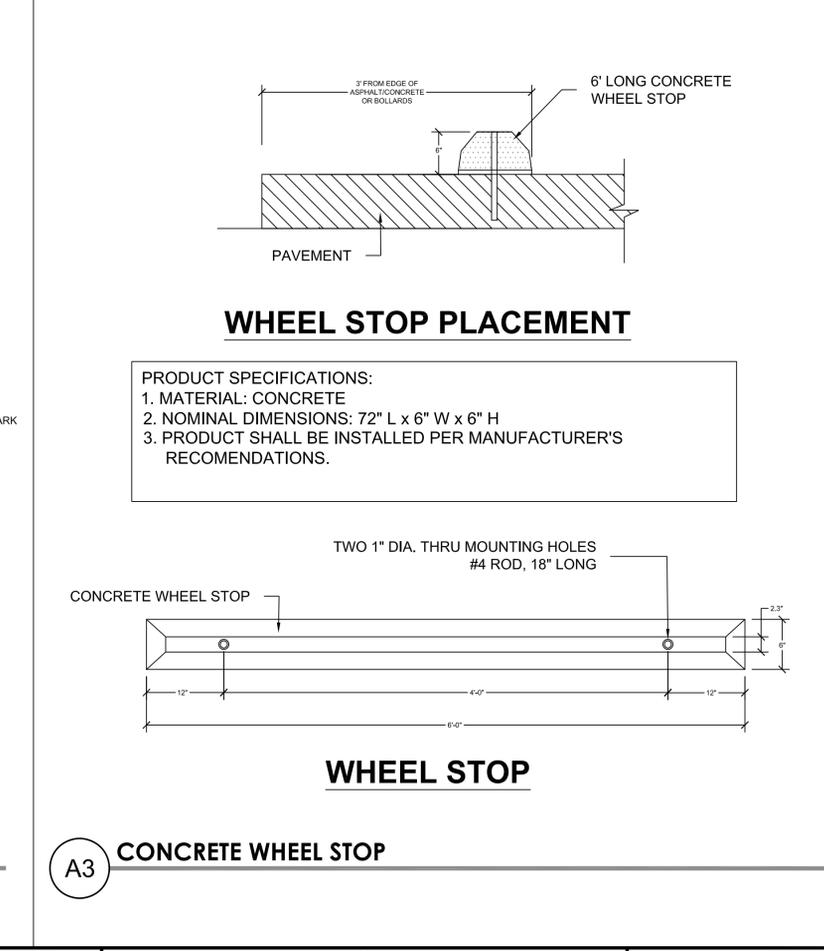
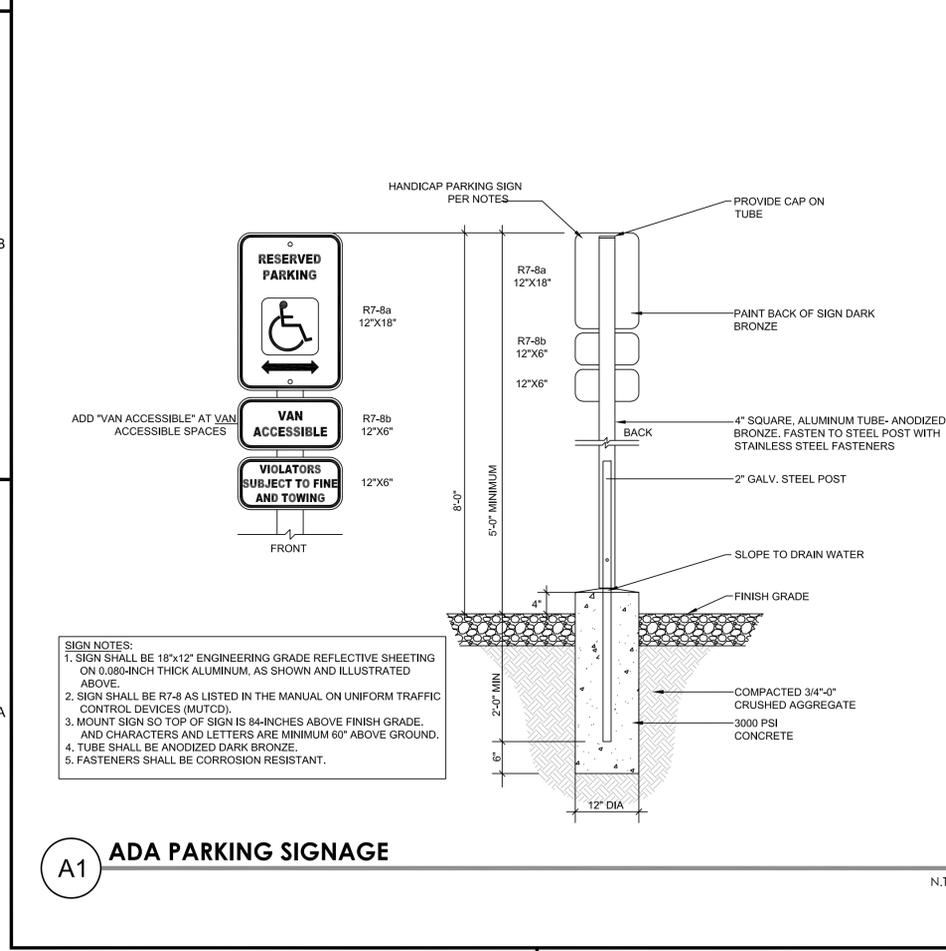
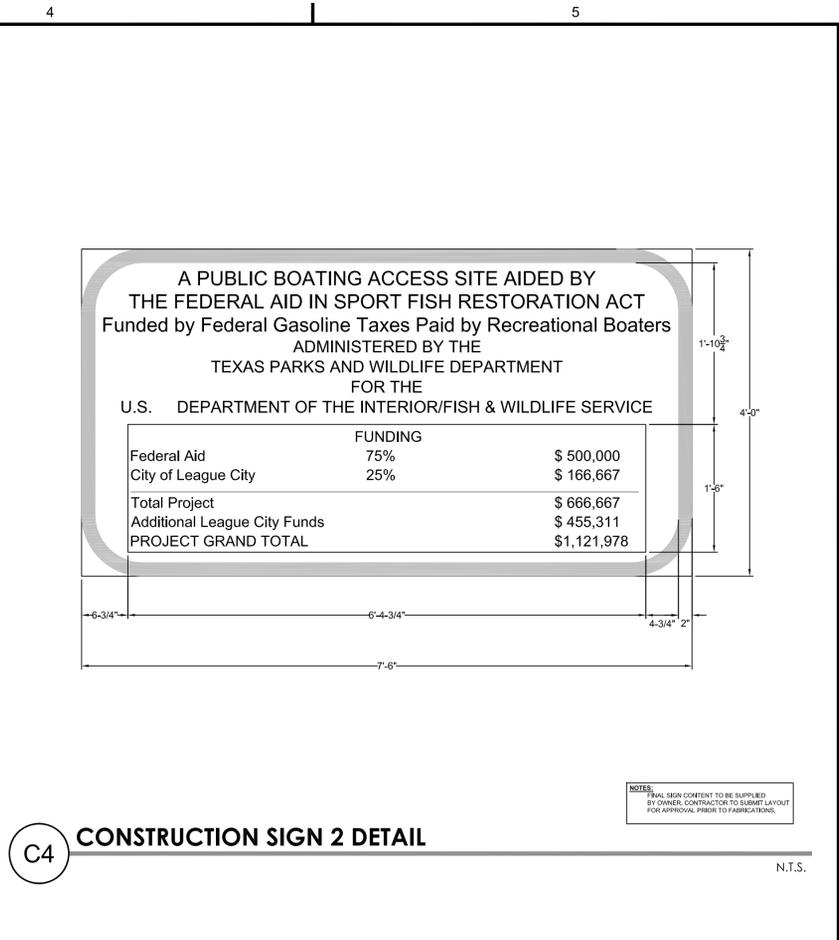
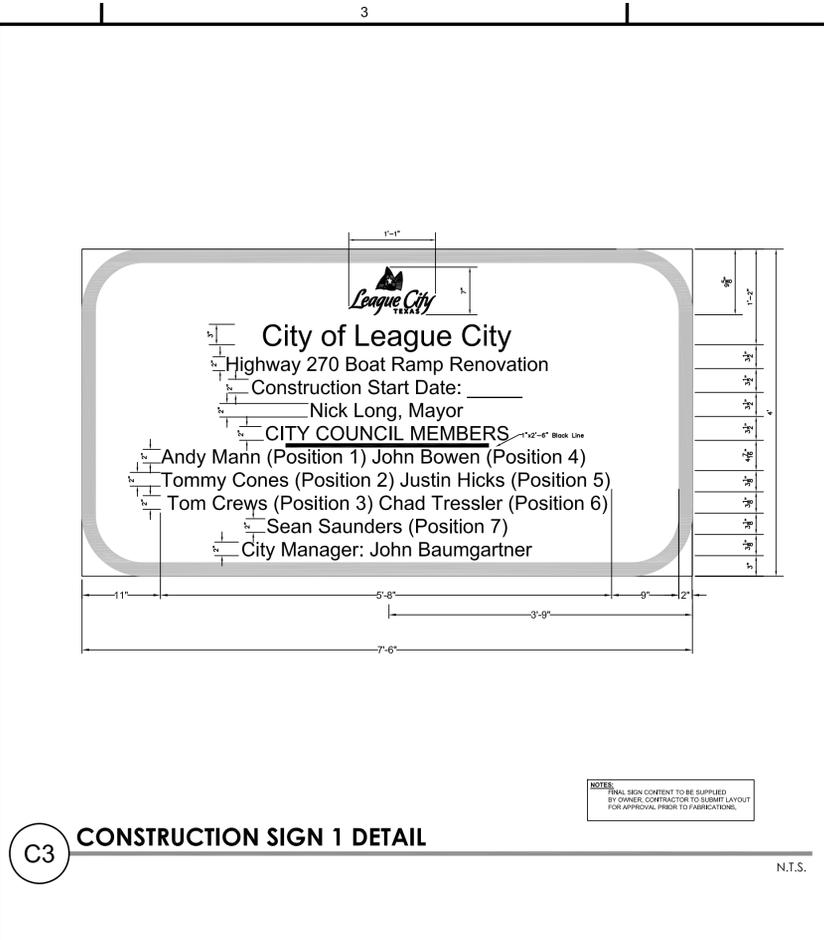
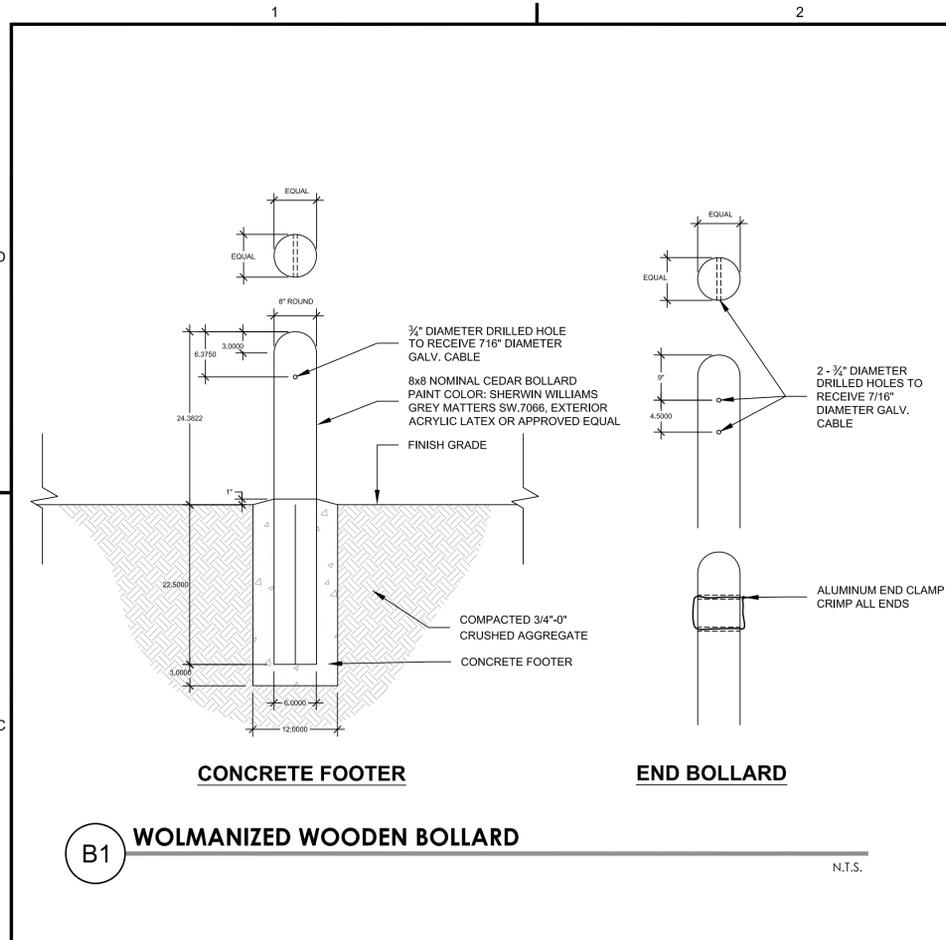
SHEET NO.:

**LP5.02**

DETAILS SHEET 1



SEAL:



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2913 MARINER DRIVE  
LEAGUE CITY, TEXAS 77573

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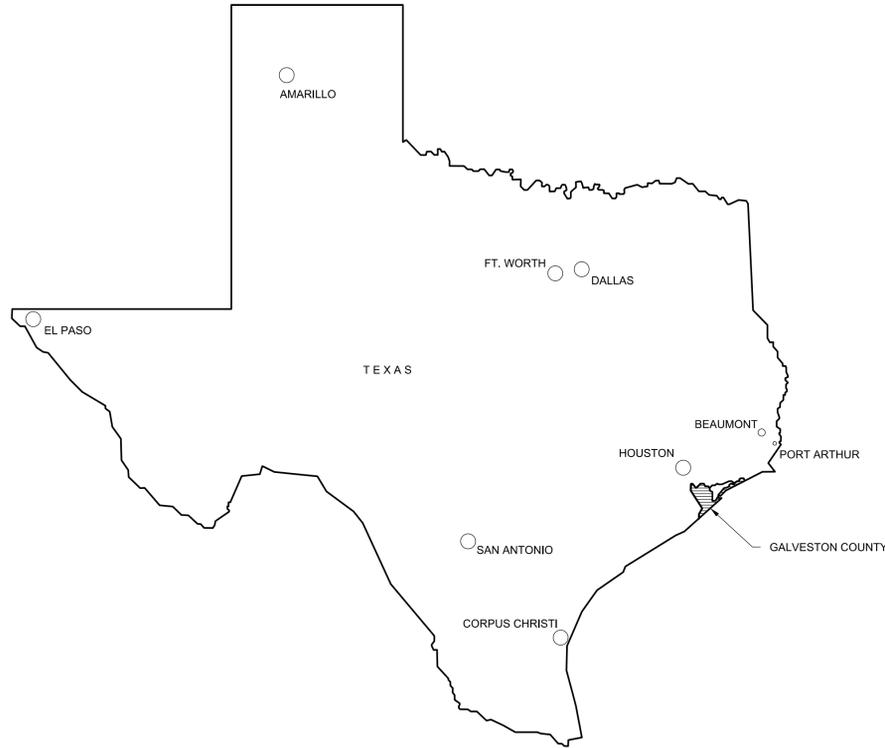
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**LP5.03**

DETAILS  
SHEET 2

# LEAGUE CITY BOAT RAMP & BULKHEAD LEAGUE CITY, TEXAS



**01** VICINITY MAP  
SCALE: N.T.S.

**SHEET INDEX:**

1036-1002-C-1000	COVER SHEET & SHEET INDEX
1036-1002-C-1001	GENERAL NOTES
1036-1002-C-1002	SWPPP NOTES
1036-1002-C-1003	SWPPP DETAILS
1036-1002-C-1004	HYDRAULIC CALCULATIONS
1036-1002-C-1005	EXISTING CONDITION GENERAL LAYOUT
1036-1002-C-1006	EXISTING CONDITION SECTIONS & DETAILS
1036-1002-C-1007	IMPROVEMENT GENERAL LAYOUT
1036-1002-C-1008	SHEETPILE ELEVATION
1036-1002-C-1009	BULKHEAD TYPICAL SECTIONS
1036-1002-C-1010	RAMP EXTENSION SECTIONS
1036-1002-C-1011	WALKWAY EXTENSION PLAN
1036-1002-C-1012	WALKWAY IMPROVEMENT TYPICAL SECTIONS
1036-1002-C-1013	WEST BULKHEAD REPAIR DETAILS
1036-1002-C-1014	MISCELLANEOUS DETAILS

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**LJA Engineering, Inc.**   
Marine Phone 713.953.5200  
3600 W Sam Houston Pkwy S, Suite 600 Fax 713.953.5026  
Houston, Texas 77042 FRN - F-1386

  
BING ZHANG, P.E. #110956

1	12/28/22	RCW	ISSUE FOR BIDDING & PERMITTING	RCW	BZ
0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ
ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD

**LEAGUE CITY  
BOAT RAMP  
& BULKHEAD**

COVER SHEET &  
SHEET INDEX

DRAWN BY	JRM	DATE	03/29/19	SCALE	N.T.S.	CHKD	RCW
APPVD							BZ
DRAWING NO.	B-1036-1002-C-1000					ISSUE NO.	1

**GENERAL REQUIREMENTS**

- CONTRACTOR SHALL NOT COMMENCE ANY CONSTRUCTION OPERATION UNTIL THE CONTRACTOR HAS VERIFIED THAT CONSTRUCTION / ENVIRONMENTAL PERMITS FOR THIS PROJECT HAVE BEEN ACQUIRED.
- DESIGN AND CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES AND STANDARDS. THE PROJECT DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY OF ANY CONFLICTS BETWEEN STATE AND LOCAL CODES, PROJECT SPECIFICATIONS AND PROJECT DRAWINGS PRIOR TO ANY CONSTRUCTION.
- CONTRACTOR SHALL FIELD CHECK AND VERIFY ALL ELEVATIONS, COORDINATES, DIMENSIONS, EXISTING CONDITIONS, AND INFORMATION INDICATED ON THE CONTRACT DOCUMENTS PRIOR TO COMMENCEMENT OF SITE WORK. THE OWNER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES FOUND ON THE CONTRACT DOCUMENTS OR FOUND TO EXIST BETWEEN THE FIELD CONDITIONS AND THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL TAKE CORRECTIVE ACTION AS DIRECTED BY THE OWNER.
- CONTRACTOR SHALL SUBMIT STORM WATER POLLUTION PREVENTION PLAN TO OWNER. CONSTRUCTION ACTIVITY MAY NOT COMMENCE UNTIL THE PLAN IS APPROVED.
- THE LOCATION AND DEPTH OF UTILITIES SHALL BE PHYSICALLY VERIFIED BY THE CONTRACTOR BEFORE WORK COMMENCES. PRIOR TO BEGINNING ANY EXCAVATION WORK IN THE AREA OF EXISTING UTILITIES, THE CONTRACTOR SHALL CONTACT THE UTILITY COMPANIES FOR EXACT LOCATIONS AND DEPTHS TO PREVENT ANY DAMAGE OR INTERFERENCE WITH PRESENT FACILITIES.
- CONTRACTOR SHALL MAINTAIN ALL REGULATORY AND WARNING SIGNS DURING THE CONSTRUCTION PERIOD.
- WORKER SAFETY IN EXCAVATIONS AND TRENCHES SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) STANDARDS, 29 CFR 1926, SUBPART P, EXCAVATIONS, TRENCHING, AND SHORING. COMPLY WITH USACE-EM-385 FOR ALL ASPECTS OF CONSTRUCTION.
- SAFETY AND STRUCTURE STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST THE DESIGN LIVE LOAD ONLY AS A COMPLETED STRUCTURE.
- ALL EXISTING ROADWAY AND OTHER FEATURES THAT ARE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER. COORDINATE WITH OWNER FOR ANY INTERFERENCE WITH VEHICULAR TRAFFIC AND DAILY OPERATION DURING THE COURSE OF THE WORK.

**HORIZONTAL AND VERTICAL CONTROL**

- ELEVATIONS SHOWN REFERENCE NAVD' 88 IN FEET. COORDINATES SHOWN REFERENCE NAD' 83 STATE PLANE TEXAS SOUTH CENTRAL, ZONE 4204 IN GRID VALUES.
- EXISTING CONDITIONS AT BULKHEAD AND BOAT RAMP AREA ARE BASED ON THE TOPOGRAPHIC AND HYDROGRAPHIC SURVEY PREFORMED BY LJA SURVEYING, INC., UNDER JOB ID #LJAS001-1036-1002.

**SOIL BORINGS**

- FOR BORING LOGS REFER TO TWE GEOTECHNICAL REPORT TITLED: "REPORT OF GEOTECHNICAL CONSULTING SERVICES, FM 270 PUBLIC BOAT RAMP RENOVATION, LEAGUE CITY, GALVESTON COUNTY, TEXAS", REPORT NO. 18.13.162, DATED FEBRUARY 22, 2019, WITH UPDATES IN EMAIL CORRESPONDENTS.
- SOIL INVESTIGATION DATA IS PROVIDED FOR THE INFORMATION AND CONVENIENCE OF THE CONTRACTOR. FOR REFERENCE PURPOSES ONLY. THE OWNER AND ENGINEER DISCLAIM ANY RESPONSIBILITY FOR THE ACCURACY, TRUE LOCATION AND EXTENT OF THE SOIL INVESTIGATION THAT HAS BEEN PREPARED FOR OTHERS. THEY FURTHER DISCLAIM RESPONSIBILITY FOR INTERPRETATION OF THAT DATA BY THE CONTRACTOR, AS IN PROJECTING SOIL-BEARING VALUES, SOIL STABILITY, AND THE PRESENCE, LEVEL, AND EXTENT OF UNDERGROUND WATER, ETC. THE CONTRACTOR SHALL FAMILIARIZE THEMSELV WITH THE SUBSURFACE AND GROUND WATER CONDITIONS PRIOR TO CONSTRUCTION.
- A COPY OF THE ENTIRE SOIL INVESTIGATION REPORT AND UPDATES IS AVAILABLE TO REVIEW AT THE OWNER'S OFFICE.

**DEMOLITION AND SALVAGE**

- THE CONTRACTOR SHALL REMOVE ALL EXISTING ABOVE SURFACE AND BURIED STRUCTURES ON THE SITE WHICH ARE REQUIRED TO ALLOW THE NEW CONSTRUCTION AS SHOWN. THE APPROXIMATE LOCATION AND EXTENT OF THESE STRUCTURES HAVE BEEN SHOWN ON THIS DRAWING.
- DEMOLITION OF EXISTING FACILITIES UNLESS NOTED OTHERWISE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF LEGALLY AND PROPERLY. ALL DEBRIS SHALL BE HAULED OFF SITE AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
- EXCAVATED SOIL AND ROCK SHALL BE DISPOSED OF AS DIRECTED BY OWNER AT THE EXPENSE OF THE CONTRACTOR.
- MATERIALS TO BE SALVAGED FOR THE OWNER'S USE ARE AS FOLLOWS:
  - A. EXISTING RIPRAP
- MATERIALS TO BE SALVAGED SHALL BE STOCKPILED IN THE AREA AS DIRECTED BY THE OWNER.

**SITE WORK/EARTHWORKS**

- THE CONTRACTOR SHALL REMOVE ALL EXISTING ABOVE SURFACE AND BURIED STRUCTURES ON THE SITE WHICH ARE REQUIRED TO ALLOW THE NEW CONSTRUCTION AS SHOWN. THE APPROXIMATE LOCATION AND EXTENT OF THESE STRUCTURES HAVE BEEN SHOWN ON THIS DRAWING.
- DEMOLITION OF EXISTING FACILITIES UNLESS NOTED OTHERWISE SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF LEGALLY AND PROPERLY. ALL DEBRIS SHALL BE HAULED OFF SITE AND DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
- EXCAVATED SOIL AND ROCK SHALL BE DISPOSED OF AS DIRECTED BY OWNER AT THE EXPENSE OF THE CONTRACTOR.

**FINAL GRADING**

- NO HORIZONTAL AND VERTICAL DESIGN IS INCLUDED IN THIS DESIGN BEYOND THE BULKHEAD AND BOAT RAMP REPAIR AREA.
- AREAS IMMEDIATELY BEHIND THE REPAIRED OR REPLACED BULKHEAD SHALL BE GRADED TO MATCH EXISTING GROUND ELEVATIONS. TRANSITIONS IN GRADE SHALL BE SMOOTH AND UNIFORM.
- GRADING SHALL BE PREFORMED IN SUCH A MANNER THAT WATER IS NOT PONDED ON GROUND SURFACES.

**SHOP DRAWINGS**

- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE DRAWINGS, PRIOR TO PREPARATION OF SHOP DRAWINGS.
- SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER BEFORE PURCHASE OF ANY MATERIALS OR START OF FABRICATION.
- THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS IS PROHIBITED.
- DETAILING OF REINFORCING STEEL SHOP DRAWINGS SHALL CONFORM TO THE LATEST EDITION OF THE ACI DETAILING MANUAL, ACI 315.

**STRUCTURAL STEEL**

- DESIGN STRENGTHS:
  - WIDE FLANGE (W-SHAPES): Fy= 50 KSI
  - HP: Fy= 50 KSI
  - CHANNEL: Fy= 36 KSI
  - PIPE: Fy= 50 KSI
  - PLATES: Fy= 36 KSI
  - STRUCTURAL BOLT: Fy= 80 KSI, Fu=105 KSI
  - TIE ROD: Fy= 75 KSI, Fu=100 KSI
  - ANCHOR BOLT: Fy= 36 KSI, Fu=58 KSI
  - WELD: Fexx= 70 KSI
- STRUCTURAL STEEL FABRICATION SHALL CONFORM TO AISC 325.
- ALL STRUCTURAL STEEL UNLESS NOTED OTHERWISE SHALL BE HOT DIP GALVANIZED AFTER FABRICATION, MINIMUM 2 OZ. PER SQUARE FOOT.

**WELDING**

- ALL WELDS ON STEEL PILING, BRACES, PLATES, ETC. SHALL BE MADE IN ACORDANCE WITH THE STRUCTURAL WELDING CODE, AWS D-1.1.
- ALL WELDS SHALL BE WITH E70XX ELECTRODES IN ACCORDANCE WITH AWS D-1.1. USE HIGHER STRENGTH ELECTRODE IF REQUIRED BY AWS D1.1.
- WELDING INSPECTION AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AISC 360-10 CHAPTER N.

**SHEET PILING**

- SHEET PILING MINIMUM SECTION PROPERTIES:
  - ALLOWABLE MOMENT = 15147 FT-LB/FT
  - STIFFNESS EI = 130,000,000 LB-IN<sup>2</sup>/FT
  - SECTION MODULUS = 56.8 IN<sup>3</sup>/FT
  - MOMENT OF INERTIA = 341 IN<sup>4</sup>/FT
  - WEB/FLANGE THICKNESS = 0.715 IN
- VINYL SHEET PROPERTIES SHALL MEET CHARACTERISTICS OF CMI LIMITED CO. VINYL SHEET PILE DESIGNATION SG-950, OR APPROVED EQUAL.
- SHOP DRAWINGS SHALL BE SUBMITTED TO AND ACCEPTED BY OWNER BEFORE PURCHASE OF MATERIAL.
- ALL PILING SHALL BE DRIVEN TO THE TIP ELEVATIONS SHOWN ON THE DRAWINGS WITH FOLLOWING TOLERANCES:
  - VARIATION FROM A STRAIGHT LINE: 2 INCHES
  - VARIATION FROM PLUMB (PERPENDICULAR TO WALL ALIGNMENT): 1 INCH IN 10 FOOT
  - VARIATION FROM GRADE: 1.5 INCH
- MINIMUM INSTALLED LENGTH MAKES NO ALLOWANCE FOR TEMPLATES, CUT OFFS, ETC. CONTRACTOR SHALL ENSURE THAT SUFFICIENT PILE LENGTH IS FABRICATED SO THAT THE REQUIRED PILE PENETRATION CAN BE OBTAINED.

**SHEET PILE BACKFILL**

- THE GRANULAR BACKFILL BELOW WATER ELEVATION (APPROX. EL. 0.0') SHALL BE CRUSHED STONE (ANGULAR) FILL MEETING THE GRADATION REQUIREMENTS AS FOLLOWS:

SIEVE SIZE	% PASSING
1"	100
3/4"	95-100
3/8"	20-55
NO. 4	0-10
NO. 8	0-5
NO. 200	0

- THE FILL MATERIAL SHALL BE PLACED UNIFORMLY ALONG THE LENGTH OF BULKHEAD IN LIFTS NOT TO EXCEED 1 FT.
- FILL MATERIAL ABOVE WATER ELEVATION SHALL BE TXDOT ITEM 247 TYPE A GRADE 1. THE FILL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 8 INCHES. THE COMPACTION WITHIN 5 FEET OF SHEET PILE AND THE ANCHORS SHALL BE CARRIED OUT BY PNEUMATIC OR HAND TAMPERS ONLY. COMPACT EACH LIFT TO A MINIMUM OF 90% MAXIMUM DRY DENSITY AS DETERMINED IN ACCORDANCE WITH ASTM D698.

**CONCRETE**

- DESIGN STRENGTHS:
  - CONCRETE: F'c = 5000 PSI AT 28 DAYS
  - REINFORCING STEEL: Fy = 60000 PSI
- THE MAXIMUM WATER TO CEMENTITIOUS RATIO, BY WEIGHT SHALL BE 0.40.
- A HIGH RANGE WATER REDUCING ADMIXTURE IN ACCORDANCE WITH THE SPECIFICATIONS SHALL BE USED IN ALL CONCRETE.
- ALL CONCRETE WORK SHALL COMPLY WITH THE PROVISIONS AND RECOMMENDATIONS OF THE LATEST EDITIONS ACI 301 AND ACI 318, UNLESS OTHERWISE SPECIFIED.
- ALL EXPOSED CORNERS SHALL BE PROVIDED WITH MINIMUM 3/4" CHAMFER, UNLESS OTHERWISE NOTED.
- PRIOR TO CASTING NEW CONCRETE AGAINST EXISTING CONCRETE SURFACE, ROUGHEN THE EXISTING SURFACE. THE EXISTING SURFACE SHALL BE FREE OF LAITANCE AND SHALL BE ROUGHENED TO FULL AMPLITUDE OF APPROXIMATELY 1/4". APPLY BONDING AGENT IN ACCORDANCE TO TECHNICAL SPECIFICATION.
- PROVIDE MEDIUM BROOM FINISH FOR EXPOSED CONCRETE SURFACE.
- CLEAR COVER ON REINFORCING STEEL SHALL BE A MINIMUM OF 3", UNLESS OTHERWISE NOTED.

**GENERAL DESIGN CRITERIA**

- WATER LEVELS (NAVD88):
  - MEAN HIGHER HIGH WATER LEVEL = 1.4 FT
  - MEAN LOW WATER LEVEL = 0.1 FT
  - MINIMUM WATER LEVEL = -1.0 FT

DESIGN LOAD:

A. WEST BULKHEAD WALL:

LOAD CASE	WATER LEVEL (FT)		SURCHARGE (PSF)
	WATER SIDE	LAND SIDE	
USUAL	0.4	1.4	100
UNUSUAL	0.0	0.5	50
EXTREME	0.4	4.6	50

B. BOAT LAUNCH RAMPS & WALKWAY 2 EXTENSION:

- LIVE LOAD: 100 PSF
- REPRESENTATIVE BOAT:
  - LENGTH X WIDTH X DRAFT = 26' X 8' X 2'
  - LOADED DISPLACEMENT = 6.35 T
- BERTHING IMPACT:
  - APPROACH VELOCITY: V = 1.0 FT/S
  - MAXIMUM BERTHING ANGLE = 10 DEGREE
- WIND LOAD: WIND PRESSURE ON BOATS = 20 PSF

3. DESIGN STRENGTH:

- LUMBER STRESS RATING: 1950F-1.7E, OR SELECT STRUCTURAL GRADE SOUTHERN PINE
- TIMBER PILE: FB = 1950 PSI, FA = 1250 PSI, E = 1,500,000 PSI

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BING ZHANG, P.E. \*110956

ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD
1	12/28/22	RCW	ISSUE FOR BIDDING & PERMITTING	RCW	BZ
0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ

**LEAGUE CITY BOAT RAMP & BULKHEAD**

**GENERAL NOTES**

DRAWN BY	JRM	DATE	03/29/19	SCALE	N.T.S.	CHWD	RCW	
						APPVD	BZ	
DRAWING NO.	B-1036-1002-C-1001						ISSUE NO.	1

**STORM WATER POLLUTION PREVENTION**

1. IF THE SWPPP IS CHANGED AFTER THE CITY HAS APPROVED THE PLAN SET, THE CONTRACTOR MUST RESUBMIT CHANGES TO THE STORM WATER INSPECTOR FOR APPROVAL BEFORE CHANGES ARE MADE ON-SITE.
2. THE CONTRACTOR SHALL MAINTAIN SILT FENCING AND SEDIMENT DEVICES AT ALL TIMES AND DO AN INSPECTION EVERY 7 DAYS AND/OR WITHIN 24 HOURS OF THE END OF A RAINFALL EVENT. ALL EROSION CONTROL DEVICES SHOULD BE CLEANED AND REPAIRED IN ACCORDANCE WITH THE FOLLOWING:
  - A. SILT FENCING & SEDIMENT DEVICES SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR SHALL BE REPLACED IF THEY SHOW SIGNS OF DETERIORATION.
  - B. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEDED AS NEEDED.
  - C. SILT FENCING SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCING WHEN IT REACHES ONE-THIRD TO ONE-HALF THE HEIGHT OF THE SILT FENCE.
  - D. THE CONSTRUCTION ENTRANCES SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO A RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE CONSTRUCTION ENTRANCES AS CONDITIONS DEMAND.
  - E. THE TEMPORARY PARKING AND STORAGE AREA SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF TEMPORARY PARKING AS CONDITIONS DEMAND.
3. A FINAL CO SHALL NOT BE ISSUED UNTIL ALL EROSION AND SEDIMENT CONTROL DEVICES ARE REMOVED.
4. CONTRACTOR WILL SWEEP STREETS AND CURB LINES ONCE A DAY UNTIL ALL CONCRETE/PAVING IS IN PLACE. ALL MATERIAL SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
5. ALL CONTRACTORS AND SUBCONTRACTORS INVOLVED WITH STORM WATER POLLUTION PREVENTION SHALL OBTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN AND THE STATE OF TEXAS NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEMS GENERAL PERMIT (NPDES PERMIT) AND

BECOME FAMILIAR WITH THEIR CONTENTS.

6. MUST KEEP DUMPSTERS CLEAN AND ALL TRASH PICKED UP ON PROJECT SITE AT ALL TIMES.
7. ALL WASH WATER (CONCRETE TRUCKS, VEHICLE CLEANING, EQUIPMENT CLEANING, ETC ) SHALL BE DISPOSED OF IN A MANNER THAT PREVENTS CONTACT BETWEEN THESE MATERIALS AND STORM WATER THAT IS DISCHARGED FROM THE SITE.
8. MAINTAIN OR HAVE READILY AVAILABLE SUFFICIENT OIL AND GREASE ABSORBING MATERIALS AND FLOTATION BOOMS TO CONTAIN AND CLEAN UP FUEL OR CHEMICAL SPILLS AND LEAKS.
9. DUST SHALL BE CONTROLLED BY SPRAYING WATER ON DRY AREAS OF THE SITE. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.
10. NO RUBBISH, TRASH, GARBAGE OR OTHER SUCH MATERIALS SHALL BE DISCHARGED INTO DRAINAGE DITCHES OR WATERS OF THE STATE.
11. ALL STORM WATER POLLUTION PREVENTION MEASURES PRESENTED ON THIS PLAN, AND IN THE STORM WATER POLLUTION PREVENTION PLAN, SHALL BE INITIATED AS SOON AS PRACTICABLE.
12. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY WILL STOP FOR AT LEAST 21 DAYS SHALL BE TEMPORARILY SEEDED WITHIN 14 DAYS.
13. DISTURBED PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITY HAS PERMANENTLY STOPPED SHALL BE PERMANENTLY SEEDED. THESE AREAS SHALL BE SEEDED NO LATER THAN 14 DAYS AFTER THE LAST CONSTRUCTION ACTIVITY OCCURRING IN THESE AREAS. REFER TO THE LANDSCAPING PLAN.
14. CONTRACTORS OR SUBCONTRACTORS WILL BE RESPONSIBLE FOR REMOVING SEDIMENT IN THE DETENTION POND AFTER THE STABILIZATION OF THE SITE AND ANY SEDIMENT THAT MAY HAVE COLLECTED IN THE STORM SEWER DRAINAGE SYSTEMS.
15. IF SOIL STOCKPILING IS EMPLOYED ON THIS SITE, SILT FENCES SHALL BE USED TO HELP CONTAIN THE SEDIMENT.
16. SEDIMENT BASINS ARE ATTRACTIVE TO CHILDREN AND CAN BE VERY DANGEROUS. IN ALL CASES, LOCAL ORDINANCES AND REGULATIONS REGARDING HEALTH AND SAFETY MUST BE ADHERED TO.
17. DURING THE DEVELOPMENT OF THE PROJECT, THE CONTRACTOR SHALL BE

RESPONSIBLE FOR ADJUSTING THE EROSION CONTROL MEASURES (SILT FENCES, STRAW BALES, ETC.) TO HELP PREVENT EROSION AND STORM WATER POLLUTION. THE LEAGUE CITY STORM WATER INSPECTOR SHALL HAVE FINAL APPROVAL OF ANY CHANGES MADE TO THE EROSION CONTROL MEASURES.

18. ALL OFF-SITE CONSTRUCTION SHALL BE STABILIZED AT THE END OF EACH WORKING DAY; THIS INCLUDES BACKFILLING OF TRENCHES FOR STORM DRAINS & UTILITY CONSTRUCTION AND PLACEMENT OF GRAVEL OR BITUMINOUS PAVING FOR ROAD CONSTRUCTION.

**GENERAL NOTES**

1. THE OWNER AND GENERAL CONTRACTOR INCLUDING SUBCONTRACTORS INVOLVED WITH THIS PROJECT WILL NEED PROPER SITE NOTICES FROM TCEQ.
  - 1.1. POST THE SITE NOTICES FROM TCEQ ON SITE WHERE THEY ARE SAFELY AND READILY AVAILABLE FOR VIEWING BY THE GENERAL PUBLIC, LOCAL, STATE, AND FEDERAL AUTHORITIES, PRIOR TO COMMENCING CONSTRUCTION, AND MAINTAIN THE NOTICE IN THAT LOCATION UNTIL COMPLETION OF THE CONSTRUCTION ACTIVITY.
2. THE CONTRACTOR SHALL BE THE PRIMARY OPERATOR OF THE SWPPP AND THE CITY OF LEAGUE CITY SHALL BE THE SECONDARY OPERATOR.
3. THE CITY OF LEAGUE CITY SHALL BE THE MS4 OPERATOR.
4. THE CITY OF LEAGUE CITY, ITS CONTRACTOR AND ALL SUBCONTRACTORS ARE REQUIRED TO ADHERE TO THE SWPPP PER THE PROJECT PLANS AND SPECIFICATIONS.
5. ONLY REINFORCED SILT FENCING CAN BE USED ON PROJECTS.
6. SAND/GRAVEL BAGS ARE NOT ALLOWED FOR INLET PROTECTION.
7. THE OWNER/OPERATOR OF ALL POST CONSTRUCTION BMPs MUST HAVE STRUCTURAL CONTROL DEVICES INSPECTED ANNUALLY BY A TEXAS REGISTERED PROFESSIONAL ENGINEER, AND FILE A "PERMITTEE CERTIFICATION OF PROPER MAINTENANCE" WITH THE CITY ANNUALLY.
8. CONTRACTOR'S SWPPP:
  - 8.1. MUST HAVE A NOTE SPECIFYING EXISTING AND POST CONSTRUCTION BMPs AS TO WHERE THEY ARE LOCATED, THE TYPE, AND MAINTENANCE RESPONSIBILITY.
  - 8.2. PROVIDE A NOTE ON SEEDING/SOD/HYDROMULCH: HOW IT WILL BE MAINTAINED, 80% COVERAGE MUST BE ESTABLISHED, ETC.
  - 8.3. MUST SHOW LOCATION OF PROTECTED INLETS & DITCHES OUTSIDE OF PROPERTY/PROJECT.
9. FLOATING TURBIDITY BARRIER SHALL BE FURNISHED AND CONSTRUCTED IN ACCORDANCE WITH SPECIAL SPECIFICATION 5040, "FLOATING TURBIDITY BARRIER."



**LEGEND**

- OHE — OHE — OVERHEAD ELECTRIC POWER LINES
- X — X — X — X — X — REINFORCE FILTER FABRIC BARRIER
- ○ — ○ — ○ — ○ — ○ — FLOATING TURBIDITY BARRIER
- SC ○ STABILIZED CONSTRUCTION EXIT

01 PROJECT IMPROVEMENTS—MINIMUM BMPs  
SCALE: 1" = 50'-0"

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**General Notes:**

1. Horizontal Data is based upon the Texas Coordinate System of 1983 (2011), SOUTH Central Zone '4204' (US Survey foot). Coordinate values and distances are in grid. Surface values can be established by using a Scale factor adjustment of 1.0001267215.
2. Vertical Data is based upon the North American Vertical Datum of 1988 (NAVD'88) (Geoid12B) and determined by GPS observations utilizing the National Geodetic Survey "Guidelines for Establishing GPS-derived Ellipsoid Heights" NOAA Technical Memorandum NOS NGS-58 (5 cm standard)

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Douglas S. Dusini 1/4/2023  
DOUGLAS S. DUSINI, P.E. #127813

ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD
1	01/04/23	DSD	ISSUED FOR BIDDING & PERMITTING	RCW	DSD
0	06/21/22	DSD	ISSUED FOR CONSTRUCTION	RCW	DSD

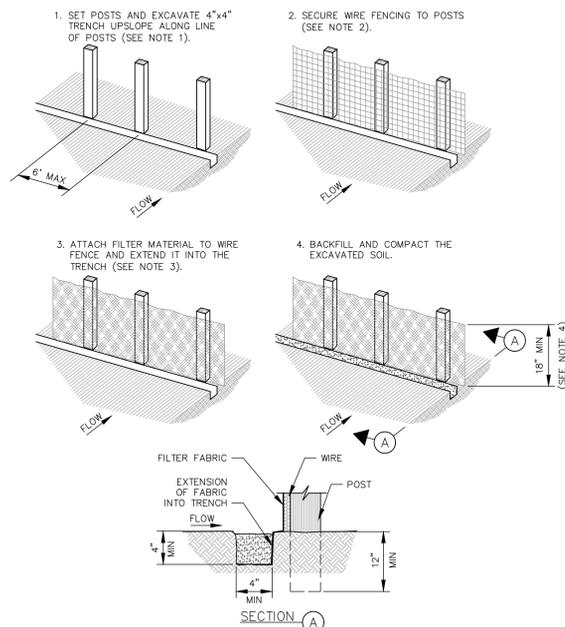
**LEAGUE CITY  
BOAT RAMP  
& BULKHEAD**

**SWPPP NOTES**

DRAWN BY	DSD	DATE	02/01/2021	SCALE	1" = 50'	CHKD	RCW	
DRAWING NO.	B1036-1002-C-1002						APPD	DSD
ISSUE NO.								0

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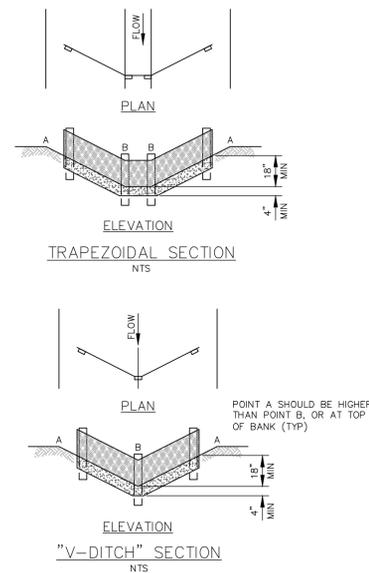


**NOTES**

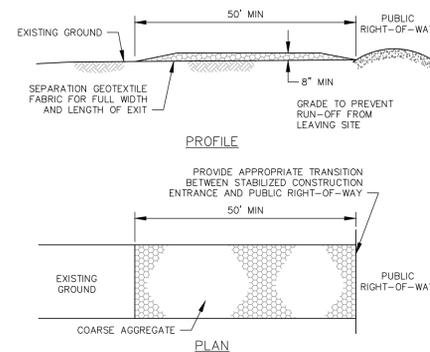
1. SET 2 INCH BY 2 INCH WOODEN STAKES SPACE A MAX OF 6 FEET APART AND EMBEDDED A MIN OF 12 INCHES.
2. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH STAPLES.
3. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE, WITH TIES SPACED EVERY 24 INCHES AT TOP AND MIDSECTION.
4. MINIMUM HEIGHT OF FILTER SHOULD BE 18 INCHES AND A MAXIMUM OF 36 INCHES ABOVE NATURAL GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED 6 INCHES AT THE POSTS AND FOLDED.



**REINFORCED FILTER FABRIC BARRIER**  
NTS



**"V-DITCH" SECTION**  
NTS

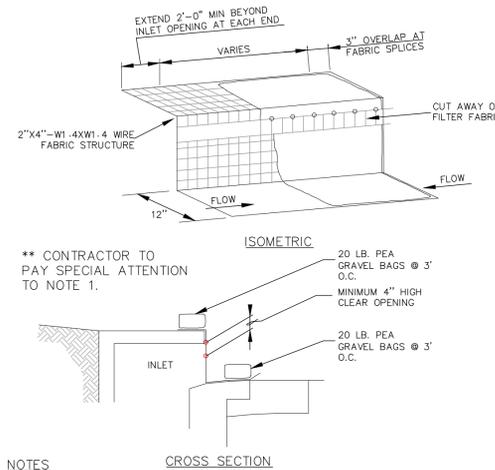


**NOTES**

1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMMODATE A TRUCK WASHING AREA. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE TRUCK WASHING AREA.
6. STABILIZED CONSTRUCTION EXIT SHALL BE MAINTAINED FREE OF SEDIMENT FOR THE DURATION OF THE PROJECT.



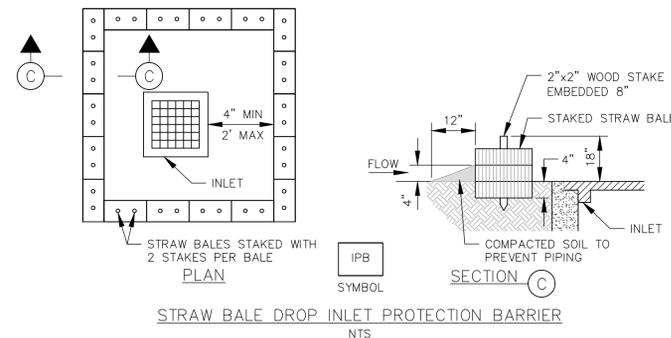
**STABILIZED CONSTRUCTION EXIT**  
NTS



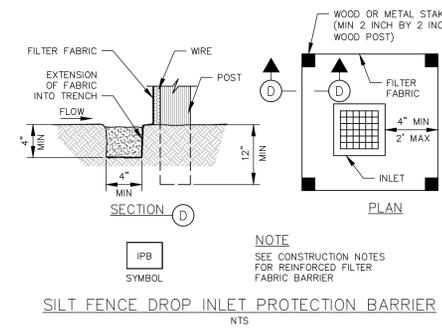
**NOTES**

1. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
2. A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL OR AS DIRECTED BY THE ENGINEER OR DESIGNATED REPRESENTATIVE. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOG RINGS AT THIS LOCATION.
3. CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTIONS IF THE STORM-WATER BEGINS TO OVERTOP THE CURB.
4. INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

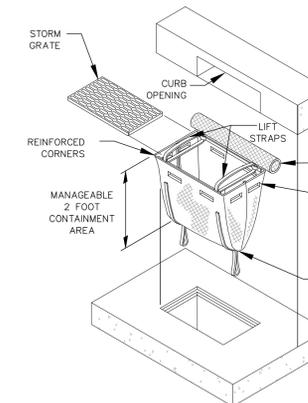
**WIRE/FILTER FABRIC CURB INLET PROTECTION**  
NTS



**STRAW BALE DROP INLET PROTECTION BARRIER**  
NTS



**SILT FENCE DROP INLET PROTECTION BARRIER**  
NTS



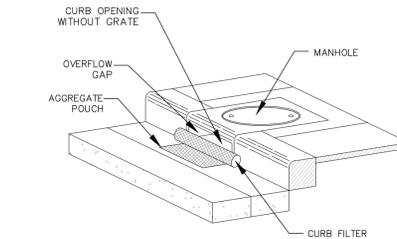
**INSERT CURB INLET PROTECTION**  
NTS

1. REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM THE VICINITY OF THE UNIT AFTER EACH STORM EVENT.
2. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE UNIT. IF UNIT IS MORE THAN 1/3 FULL OF ACCUMULATED SEDIMENT, THE UNIT MUST BE EMPTIED.
3. EMPTY THE UNIT IN A LOCATION WHERE IT WILL NOT ENTER THE STORM SEWER SYSTEM.
4. INLET PROTECTION SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

**CONTRACTOR NOTES**

1. CONTRACTOR IS RESPONSIBLE FOR DEVELOPING, IMPLEMENTING AND ADHERING TO THE CONTRACTOR DEVELOPED STORM WATER POLLUTION PREVENTION PLAN (SWPPP).
2. CONTRACTOR SHALL PREPARE ALL NOTICE OF INTENT FORMS FOR THE WORK AND OBTAIN THE NECESSARY CERTIFICATES AND SIGNATURES FROM THE OWNER, APPLICABLE SUBCONTRACTORS AND OTHERS AS REQUIRED.

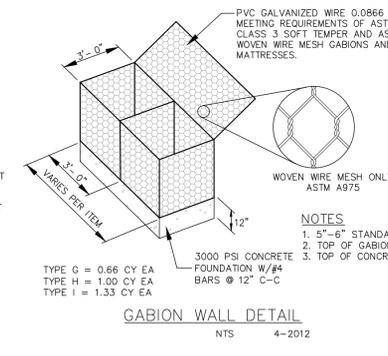
4-2012



**NOTES**

1. REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM THE VICINITY OF THE UNIT AFTER EACH STORM EVENT.
2. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE UNIT. IF UNIT IS MORE THAN 1/3 FULL OF ACCUMULATED SEDIMENT, THE UNIT MUST BE EMPTIED.
3. EMPTY THE UNIT IN A LOCATION WHERE IT WILL NOT ENTER THE STORM SEWER SYSTEM.
4. INLET PROTECTION SHALL BE REMOVED AS SOON AS THE SOURCE OF SEDIMENT IS STABILIZED.

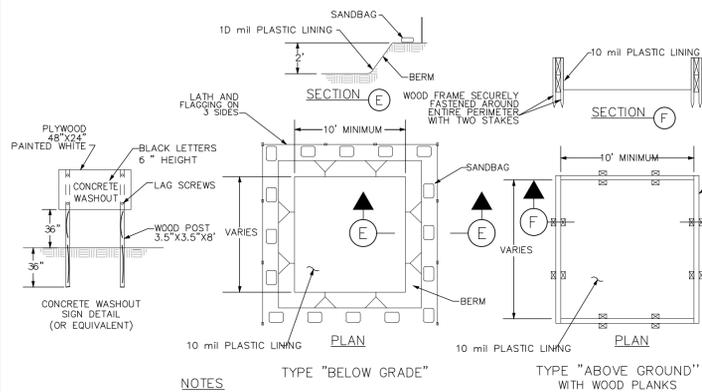
**TYPICAL DETAIL OF CURB INLET SEDIMENT CONTROL DEVICE WITH CURB FILTER**  
NTS



**GABION WALL DETAIL**  
NTS

1. 5"-6" STANDARD ROCK SIZE
2. TOP OF GABION = FOUNDATION W/# BARS @ 12" C-C
3. TOP OF CONCRETE FOUNDATION =

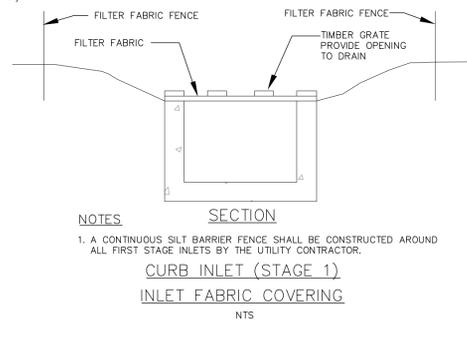
4-2012



**NOTES**

1. CONCRETE WASHOUT FACILITIES ARE TO BE LOCATED AT LEAST 50' FROM STORM DRAIN INLETS, OPEN DRAINAGE FACILITIES, CONSTRUCTION ENTRANCE OR WATER BODIES.
2. A CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE CONCRETE WASHOUT FACILITY.
3. ONCE 75% OF THE ORIGINAL VOLUME OF THE WASHOUT PIT IS FILLED OR IF THE LINER IS TORN, THE MATERIAL MUST BE REMOVED AND PROPERLY DISPOSED OF ONCE IT IS COMPLETELY HARDENED. ONCE THE HARDENED CONCRETE IS REMOVED, THE LINER MUST BE REPLACED (IF TORN). A NEW PIT MUST BE CONSTRUCTED IF THE ORIGINAL STRUCTURE IS NO LONGER SUITABLE.
4. ONCE THE PIT IS NO LONGER NEEDED, ENSURE ALL WASHOUT MATERIAL HAS COMPLETELY HARDENED, THEN REMOVE AND PROPERLY DISPOSE OF ALL MATERIALS.

**CONCRETE TRUCK WASHOUT**  
NTS

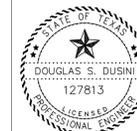


**NOTES**

1. A CONTINUOUS SILT BARRIER FENCE SHALL BE CONSTRUCTED AROUND ALL FIRST STAGE INLETS BY THE UTILITY CONTRACTOR.

**CURB INLET (STAGE 1) INLET FABRIC COVERING**  
NTS

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*Douglas S. Dusini* 1/4/2023  
DOUGLAS S. DUSINI, P.E. #127813

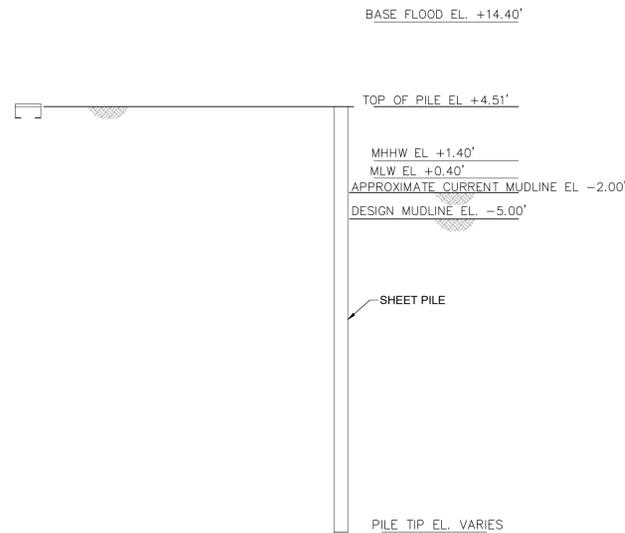
ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD
1	12/30/22	MJ	ISSUED FOR BIDDING & PERMITTING	RCW	DSD
0	06/21/22	MJ	ISSUED FOR CONSTRUCTION	RCW	DSD

**LEAGUE CITY BOAT RAMP & BULKHEAD**

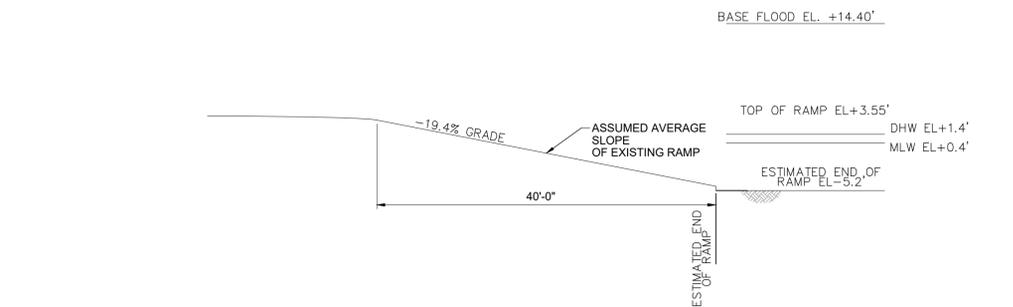
**SWPPP DETAILS**

DRAWN BY	DATE	SCALE	CHKD	RCW
MJ	01/22/2021	NTS	APPD	DSD
DRAWING NO. B-1036-1002-C-1003				
				ISSUE NO. A

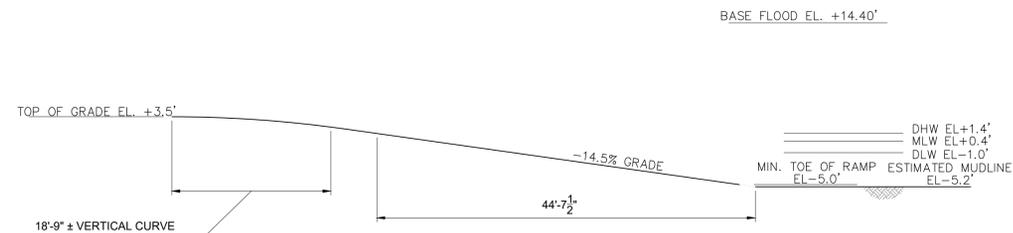
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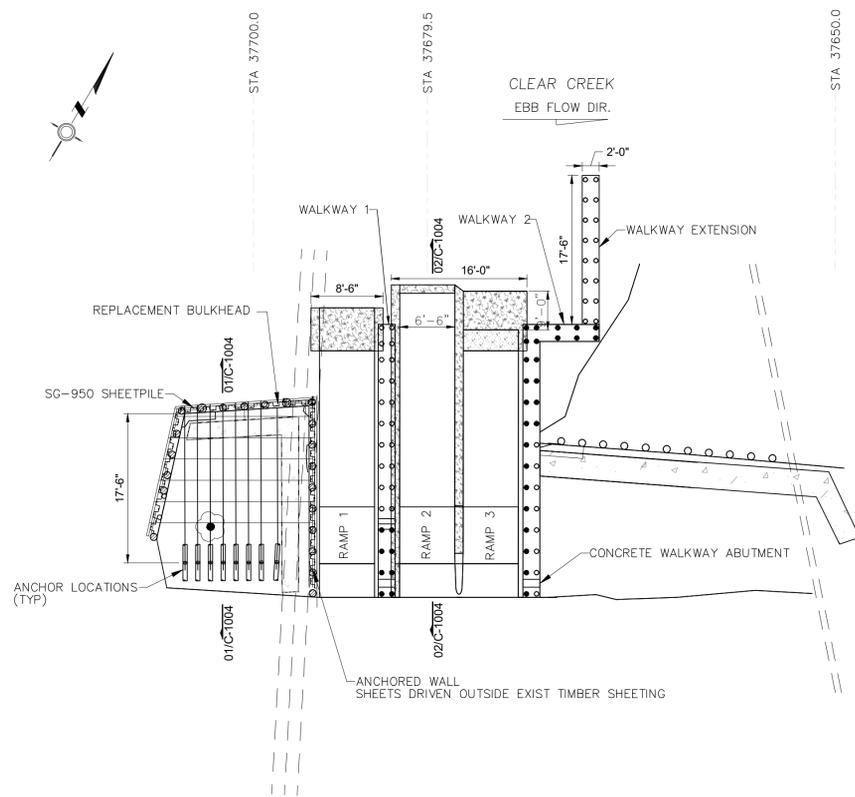
**01 BULKHEAD PROFILE**  
 SCALE: 1" = 20'-0"



**02A EXISTING RAMP 2 PROFILE**  
 SCALE: 1" = 20'-0"



**02B RAMP 2 PROFILE**  
 SCALE: 1" = 20'-0"



**03 BOAT RAMP IMPROVEMENTS - PLAN VIEW**  
 SCALE: 1" = 20'-0"

**NOTE:**  
 ENTIRE PROJECT AREA IS WITHIN THE REGULATORY FLOODWAY LIMITS PER FEMA FIRM PANEL 48167C0036G, REVISED AUG. 15, 2019.

**EXCAVATED MATERIAL**

ALL MATERIAL EXCAVATED FROM SPECIAL FLOOD HAZARD AREA (SFHA) WILL BE HAULED AWAY AND DISPOSED OF IN A LEGAL LANDFILL OR PLACED IN AN UPLAND PERMITTED DISPOSAL AREA.

**FLOODPLAIN**

ITEM	DESCRIPTION
FIRM PANEL	48167C0036G
FLOOD ZONE	"AE" FLOODWAY
NATURAL GRND. ELEV. (HIGH)	4.55 FT
NATURAL GRND. ELEV. (LOW) (AT BULKHEAD)	3.51 FT
BASE FLOOD ELEV. (AT BULKHEAD)	14.4 Ft

**FLOODPLAIN STATEMENT**

THIS PROPERTY LIES WITHIN THE DESIGNATED 100 YEAR FLOOD OR BELOW THE BASE FLOOD ELEVATION ACCORDING TO THE FLOOD INSURANCE RATE MAP PANEL NUMBER 48167C0036G, REVISED AUG 15, 2019.

**HYDRAULIC ANALYSIS METHODOLOGY**

THE EFFECTIVE HEC-RAS MODEL FOR CLEAR CREEK (A100-00-00) WAS OBTAINED FROM THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S (HCFCD) MODEL MANAGEMENT SYSTEM (M3). THE A100-00-00 M3 MODEL USES HEC-RAS VERSION 3.0.1, AND HAS AN EFFECTIVE DATE NOVEMBER 2021. A REVISED EFFECTIVE SCENARIO WAS CREATED TO ACCOUNT FOR THE GEOMETRY OF THE EXISTING BOAT RAMP. NO CROSS-SECTIONS WERE LOCATED NEAR THE BOAT RAMP. A CROSS-SECTION WAS INTERPOLATED AT RIVER STATION 37679.5. THIS CROSS-SECTION WAS MODIFIED TO ACCOUNT FOR THE GEOMETRY OF THE EXISTING BOAT RAMP. NEXT, A PROPOSED SCENARIO WAS CREATED TO ACCOUNT FOR THE PROPOSED BOAT RAMP IMPROVEMENTS. CROSS-SECTION 37679.5 FROM THE REVISED EFFECTIVE SCENARIO WAS MODIFIED TO MATCH THE GEOMETRY OF THE PROPOSED BOAT RAMP. THE EFFECTIVE FLOWS REMAIN UNCHANGED IN BOTH SCENARIOS.

**HYDRAULIC ANALYSIS RESULTS**

TWO MODEL RUN SCENARIOS WERE CREATED: REVISED EFFECTIVE (REVISED\_EFFECTIVE MULTI-PROFILE 2021) AND THE PROPOSED (PROP\_EFFECTIVE MULTI-PROFILE 2021). THE WATER SURFACE ELEVATIONS WERE COMPARED BETWEEN THE TWO SCENARIOS AT THE CROSS-SECTION WHERE THE BOAT RAMP IS LOCATED AND SEVERAL CROSS-SECTIONS UPSTREAM AND DOWNSTREAM. THERE WERE NO INCREASES TO THE WATER SURFACE ELEVATIONS BETWEEN THE REVISED EFFECTIVE AND PROPOSED CONDITIONS. THE TABLE BELOW SUMMARIZES THE WATER SURFACE ELEVATIONS AT THOSE CROSS-SECTIONS.

**TABLE: WATER SURFACE ELEVATION SUMMARY**

RIVER STATION	REVISED-EFFECTIVE				PROPOSED				DELTA (PROPOSED - REVISED EFFECTIVE)			
	10-YR	50-YR	100-YR	500-YR	10-YR	50-YR	100-YR	500-YR	10-YR	50-YR	100-YR	500-YR
39765.40	6.44	8.34	9.16	10.75	6.41	8.32	9.13	9.13	-0.03	-0.02	-0.03	-1.62
39372.55	6.42	8.33	9.14	10.73	6.39	8.30	9.11	9.11	-0.03	-0.03	-0.03	-1.62
38390.74	6.39	8.29	9.10	10.69	6.36	8.26	9.08	9.08	-0.03	-0.03	-0.02	-1.61
37679.50*	6.21	8.16	8.99	10.62	6.17	8.11	8.95	8.95	-0.04	-0.05	-0.04	-1.67
37273.21	5.84	7.70	8.52	10.09	5.84	7.70	8.52	8.52	0	0	0	-1.57
37222.00	0	0	0	0	0	0	0	0	0	0	0	0
37212.22	5.79	7.60	8.41	9.96	5.79	7.60	8.41	8.41	0	0	0	-1.55
36556.81	5.75	7.57	8.39	9.96	5.75	7.57	8.39	8.39	0	0	0	-1.57
35779.77	5.54	7.32	8.13	9.66	5.54	7.32	8.13	8.13	0	0	0	-1.53

\*BOAT RAMP INTERPOLATED XS

**HYDRAULIC ANALYSIS CONCLUSION**

THE HYDRAULIC ANALYSIS FOR THE PROPOSED BOAT RAMP IMPROVEMENTS UTILIZED THE LATEST EFFECTIVE HEC-RAS VERSION 3.0.1 MODEL FROM THE HCFCD M3 SYSTEM AND WERE MODIFIED TO ACCOUNT FOR THE EXISTING AND PROPOSED BOAT RAMP. THE ANALYSIS DETERMINED THAT THERE WILL BE NO INCREASES IN WATER SURFACE ELEVATION ALONG CLEAR CREEK DUE TO THE PROPOSED BOAT RAMP IMPROVEMENTS. IN CONCLUSION, THE PROPOSED BOAT RAMP IMPROVEMENTS RESULT IN NO ADVERSE IMPACTS TO CLEAR CREEK OR ADJACENT PROPERTIES.

**NO-RISE CERTIFICATION STATEMENT**

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I HEREBY CERTIFY THAT THERE WILL BE NO INCREASE IN THE BASE FLOOD ELEVATION DURING THE OCCURRENCE OF THE BASE FLOOD EVENT FLOOD FROM THE PROPOSED BOAT RAMP MODIFICATIONS ON CLEAR CREEK IN THE CITY OF LEAGUE CITY, TEXAS.

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*Jessica L. Koutny*  
 JESSICA L. KOUTNY, P.E. #91867 02/01/2023

ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD
1	01/04/23	DSD	ISSUED FOR BIDDING & PERMITTING	RCW	DSD
0	06/21/22	DSD	ISSUED FOR CONSTRUCTION	RCW	DSD

**LEAGUE CITY BOAT RAMP & BULKHEAD**

**HYDRAULIC ANALYSIS**

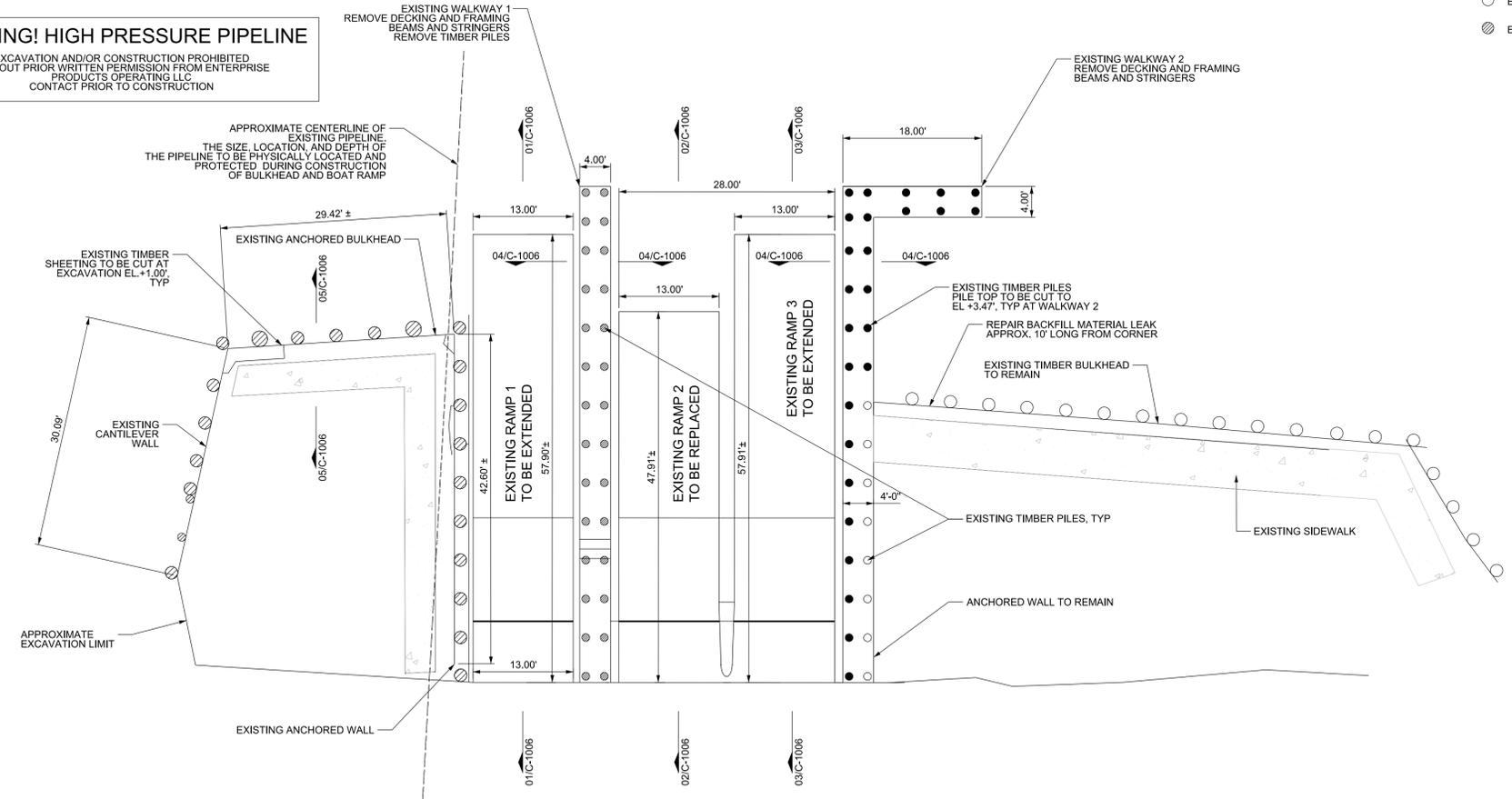
DRAWN BY	DATE	SCALE	CHKD	RCW
DSD	02/01/2021	AS NOTED	APP'VD	DSD
DRAWING NO.	ISSUE NO.			
B1036-1002-C-1004	0			

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- LEGEND:**
- EXISTING TIMBER PILE TO BE CUT AND ENCASED
  - EXISTING TIMBER PILE TO BE ENCASED
  - ⊗ EXISTING TIMBER PILE TO BE REMOVED

**WARNING! HIGH PRESSURE PIPELINE**  
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**01 BOAT RAMP - PLAN VIEW**  
 SCALE: 1" = 10'-0"

**NOTE:**  
 1. DIMENSIONS OF EXISTING CONDITION ARE BASED ON SURVEY DATA.

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BING ZHANG, P.E. #110956

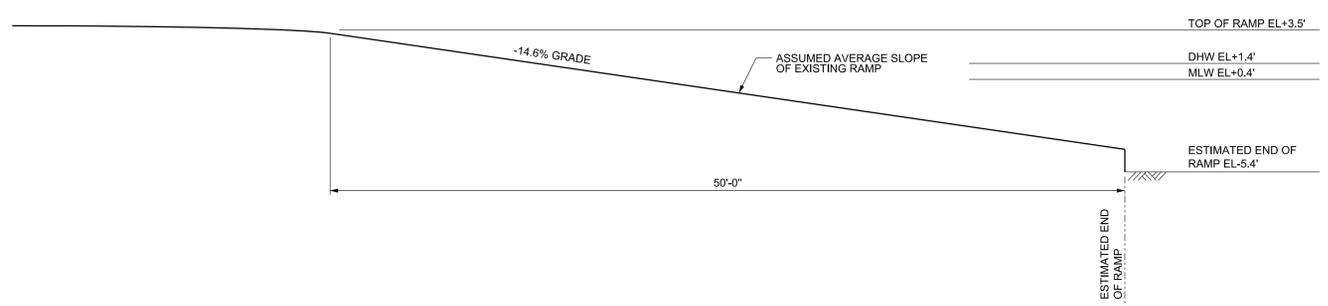
ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD
1	12/28/22	RCW	ISSUE FOR BIDDING & PERMITTING	RCW	BZ
0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ

**LEAGUE CITY BOAT RAMP & BULKHEAD**

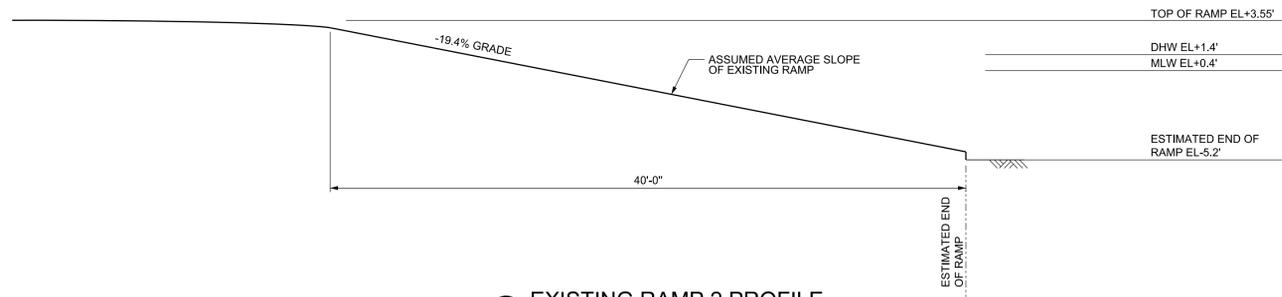
EXISTING CONDITION GENERAL LAYOUT

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APPVD							BZ	
DRAWING NO.	B-1036-1002-C-1005						ISSUE NO.	1

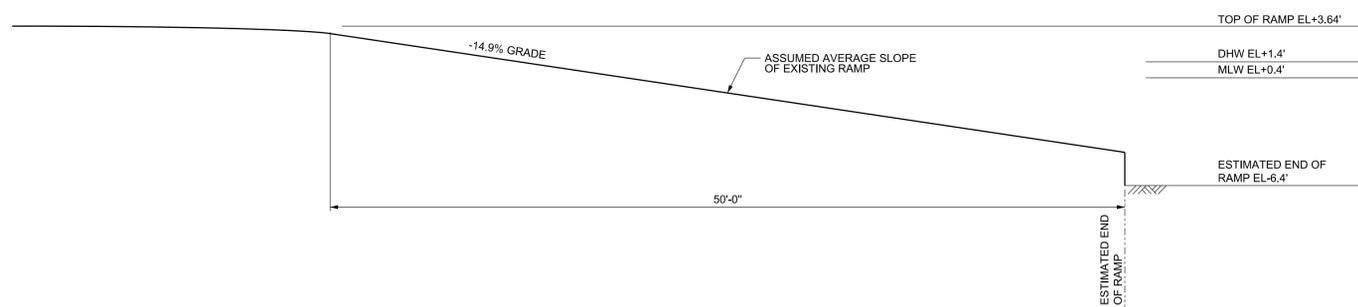
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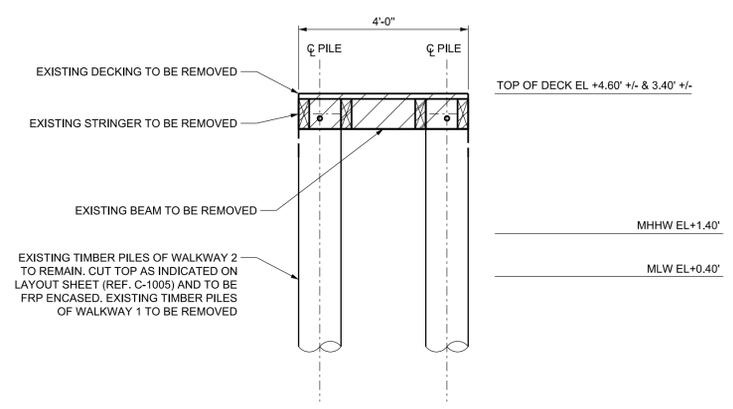
**01 EXISTING RAMP 1 PROFILE**  
 SCALE: 3/16" = 1'-0"



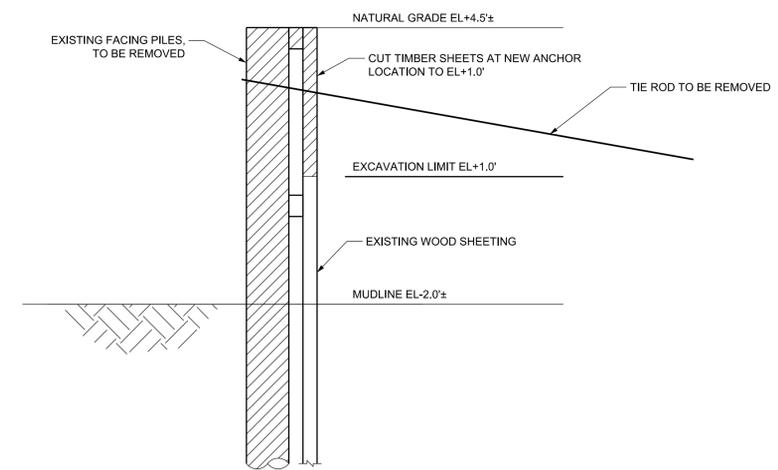
**02 EXISTING RAMP 2 PROFILE**  
 SCALE: 3/16" = 1'-0"



**03 EXISTING RAMP 3 PROFILE**  
 SCALE: 3/16" = 1'-0"



**04 EXISTING WALKWAY DETAIL**  
 SCALE: 1/2" = 1'-0"



**05 EXISTING BULKHEAD TYPICAL SECTION**  
 SCALE: 1/2" = 1'-0"

NOTE:  
 1. HATCH AREAS TO BE REMOVED.

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ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD
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0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ

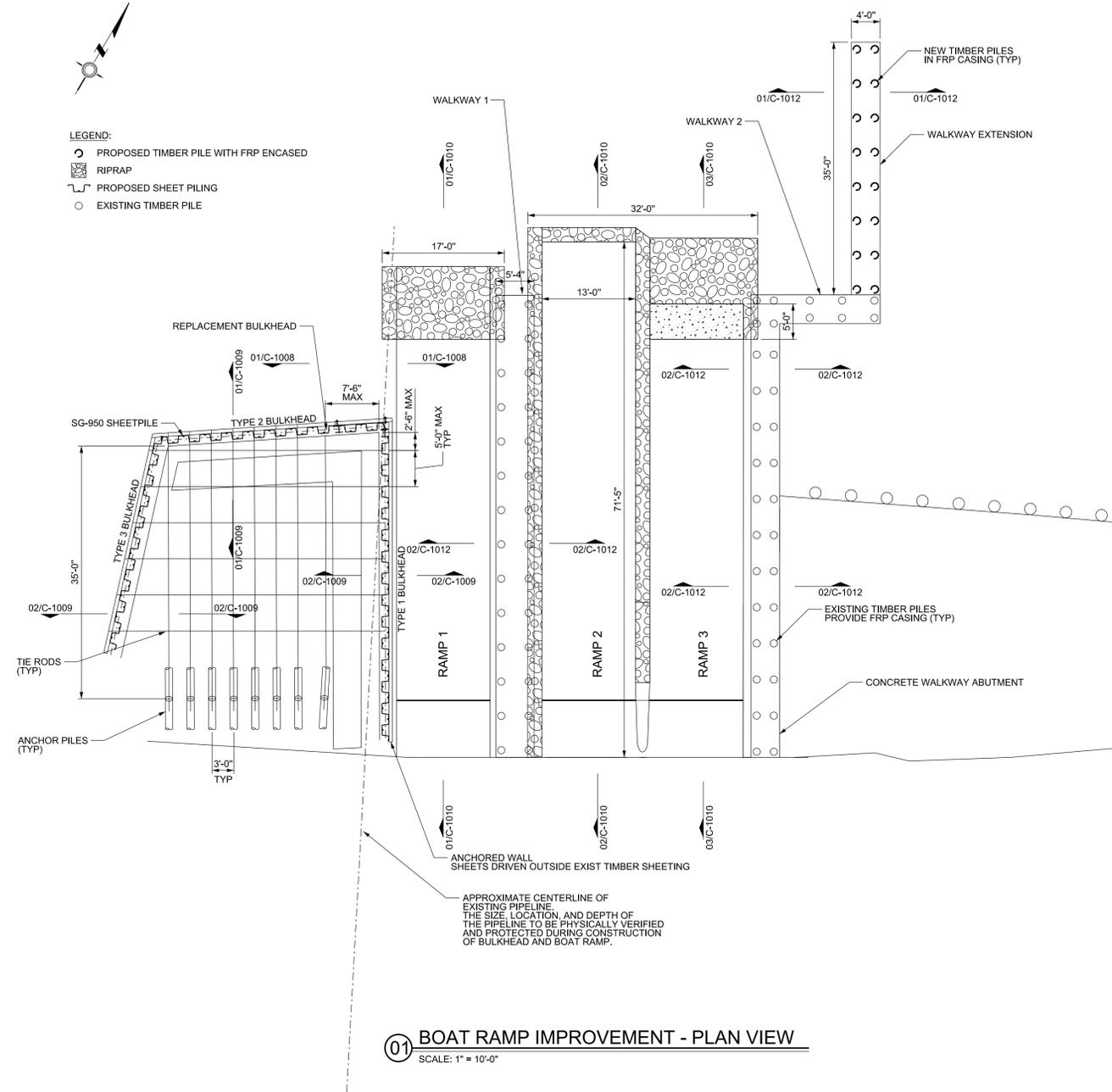
**LEAGUE CITY BOAT RAMP & BULKHEAD**

EXISTING CONDITION SECTIONS & DETAILS

DRAWN BY	JRM	DATE	03/29/19	SCALE	AS NOTED	CHKD	RCW	
DRAWING NO.	B-1036-1002-C-1006						APPVD	BZ
ISSUE NO.								1



- LEGEND:**
- PROPOSED TIMBER PILE WITH FRP ENCASED
  - RIPRAP
  - PROPOSED SHEET PILING
  - EXISTING TIMBER PILE



**01 BOAT RAMP IMPROVEMENT - PLAN VIEW**  
 SCALE: 1" = 10'-0"

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FOR STRUCTURAL BOAT RAMP  
 IMPROVEMENT - PLAN VIEW  
 BING ZHANG  
 02/02/2023  
 BING ZHANG, P.E. \*110956

**HYDRAULIC ANALYSIS METHODOLOGY**

THE EFFECTIVE HEC-RAS MODEL FOR CLEAR CREEK (A100-00-00) WAS OBTAINED FROM THE HARRIS COUNTY FLOOD CONTROL DISTRICTS (HCFCD) MODEL MANAGEMENT SYSTEM (M3). THE A100-00-00 M3 MODEL USES HEC-RAS VERSION 3.0.1, AND HAS AN EFFECTIVE DATE NOVEMBER 2021. A REVISED EFFECTIVE SCENARIO WAS CREATED TO ACCOUNT FOR THE GEOMETRY OF THE EXISTING BOAT RAMP. NO CROSS-SECTIONS WERE LOCATED NEAR THE BOAT RAMP. A CROSS-SECTION WAS INTERPOLATED AT RIVER STATION 37679.5. THIS CROSS-SECTION WAS MODIFIED TO ACCOUNT FOR THE GEOMETRY OF THE EXISTING BOAT RAMP. NEXT, A PROPOSED SCENARIO WAS CREATED TO ACCOUNT FOR THE PROPOSED BOAT RAMP IMPROVEMENTS. CROSS-SECTION 37679.5 FROM THE REVISED EFFECTIVE SCENARIO WAS MODIFIED TO MATCH THE GEOMETRY OF THE PROPOSED BOAT RAMP. THE EFFECTIVE FLOWS REMAIN UNCHANGED IN BOTH SCENARIOS.

**HYDRAULIC ANALYSIS RESULTS**

TWO MODEL RUN SCENARIOS WERE CREATED: REVISED EFFECTIVE (REVISED EFFECTIVE MULTI-PROFILE 2021) AND THE PROPOSED (PROPOSED MULTI-PROFILE 2021). THE WATER SURFACE ELEVATIONS WERE COMPARED BETWEEN THE TWO SCENARIOS AT THE CROSS-SECTION WHERE THE BOAT RAMP IS LOCATED AND SEVERAL CROSS-SECTIONS UPSTREAM AND DOWNSTREAM. THERE WERE NO INCREASES TO THE WATER SURFACE ELEVATIONS BETWEEN THE REVISED EFFECTIVE AND PROPOSED CONDITIONS. THE TABLE BELOW SUMMARIZES THE WATER SURFACE ELEVATIONS AT THOSE CROSS-SECTIONS.

**HYDRAULIC ANALYSIS CONCLUSION**

THE HYDRAULIC ANALYSIS FOR THE PROPOSED BOAT RAMP IMPROVEMENTS UTILIZED THE LATEST EFFECTIVE HEC-RAS VERSION 3.0.1 MODEL FROM THE HCFCD M3 SYSTEM AND WERE MODIFIED TO ACCOUNT FOR THE EXISTING AND PROPOSED BOAT RAMP. THE ANALYSIS DETERMINED THAT THERE WILL BE NO INCREASES IN WATER SURFACE ELEVATION ALONG CLEAR CREEK DUE TO THE PROPOSED BOAT RAMP IMPROVEMENTS. IN CONCLUSION, THE PROPOSED BOAT RAMP IMPROVEMENTS RESULT IN NO ADVERSE IMPACTS TO CLEAR CREEK OR ADJACENT PROPERTIES.

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I HEREBY CERTIFY THAT THERE WILL BE NO INCREASE IN THE BASE FLOOD ELEVATION DURING THE OCCURRENCE OF THE BASE FLOOD EVENT FLOOD FROM THE PROPOSED BOAT RAMP MODIFICATIONS ON CLEAR CREEK IN THE CITY OF LEAGUE CITY, TEXAS.

RIVER STATION	REVISED EFFECTIVE				PROPOSED				DELTA (PROP-REVISED EFFECTIVE)			
	10-YR	50-YR	100-YR	500-YR	10-YR	50-YR	100-YR	500-YR	10-YR	50-YR	100-YR	500-YR
39765.40	6.44	8.34	9.16	10.75	6.41	8.32	9.13	9.13	-0.03	-0.02	-0.03	-1.62
39372.55	6.42	8.33	9.14	10.73	6.39	8.30	9.11	9.11	-0.03	-0.03	-0.03	-1.62
38390.74	6.39	8.29	9.10	10.69	6.36	8.26	9.08	9.08	-0.03	-0.03	-0.02	-1.61
<b>37679.5*</b>	6.21	8.16	8.99	10.62	6.17	8.11	8.95	8.95	-0.04	-0.05	-0.04	-1.67
37273.21	5.84	7.70	8.52	10.09	5.84	7.70	8.52	8.52	0	0	0	-1.57
37222.00	0	0	0	0	0	0	0	0	0	0	0	0
37212.22	5.79	7.60	8.41	9.96	5.79	7.60	8.41	8.41	0	0	0	-1.55
36556.81	5.75	7.57	8.39	9.96	5.75	7.57	8.39	8.39	0	0	0	-1.57
35779.77	5.54	7.32	8.13	9.66	5.54	7.32	8.13	8.13	0	0	0	-1.53

\* BOAT RAMP INTERPOLATED XS

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ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD
1	12/28/22	RCW	ISSUE FOR BIDDING & PERMITTING	RCW	BZ
0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ

**LEAGUE CITY  
 BOAT RAMP  
 & BULKHEAD**

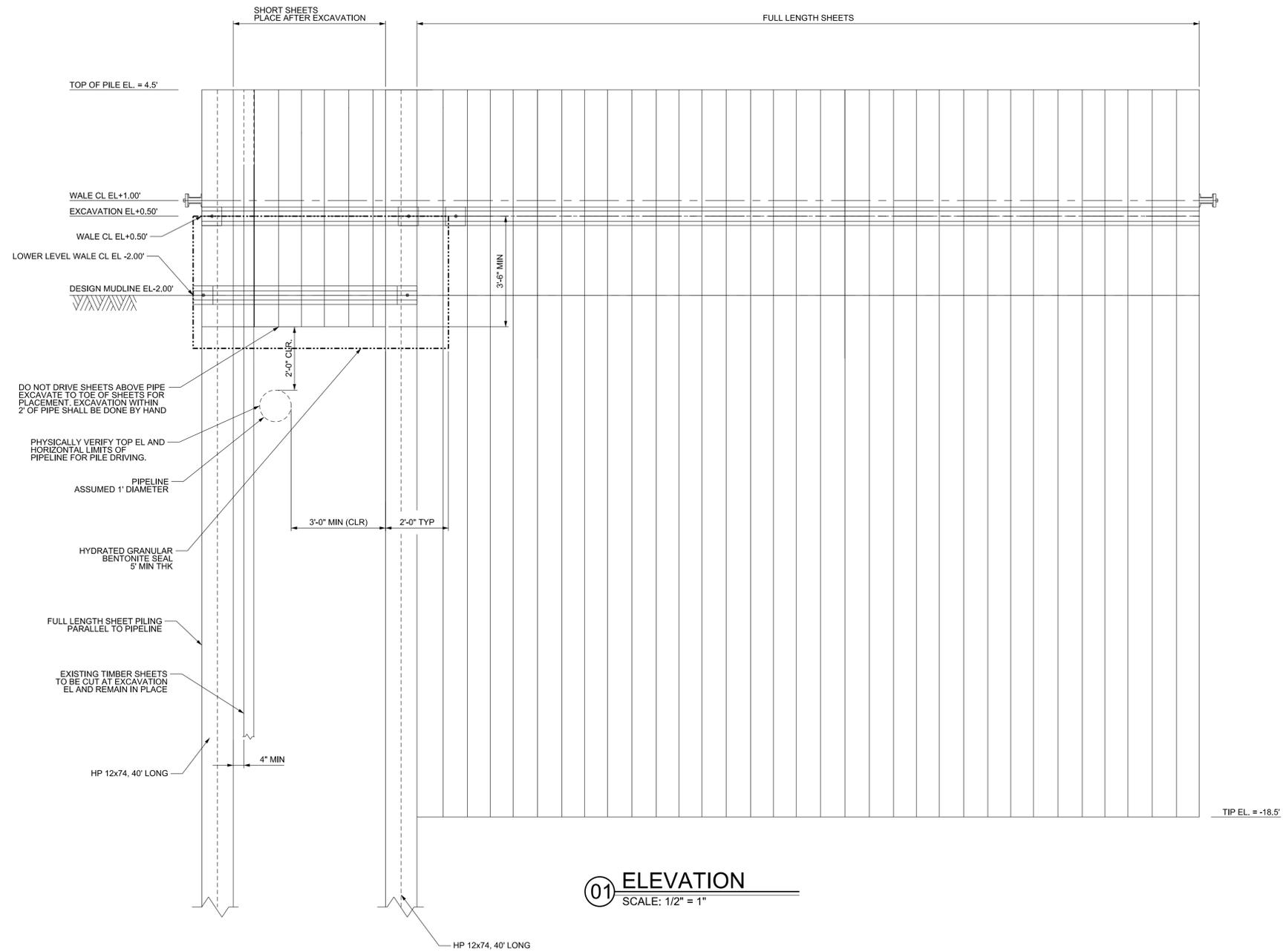
IMPROVEMENT GENERAL LAYOUT

DRAWN BY: **JRM** DATE: **10/9/19** SCALE: **1"=10'** CWD: **RCW**  
 APPVD: **BZ**  
 DRAWING NO.: **B-1036-1002-C-1007** ISSUE NO.: **1**



JESSICA L. KOUTNY, P.E. \*91867  
 02/02/2023

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**01 ELEVATION**  
 SCALE: 1/2" = 1"

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 BING ZHANG, P.E. #110956

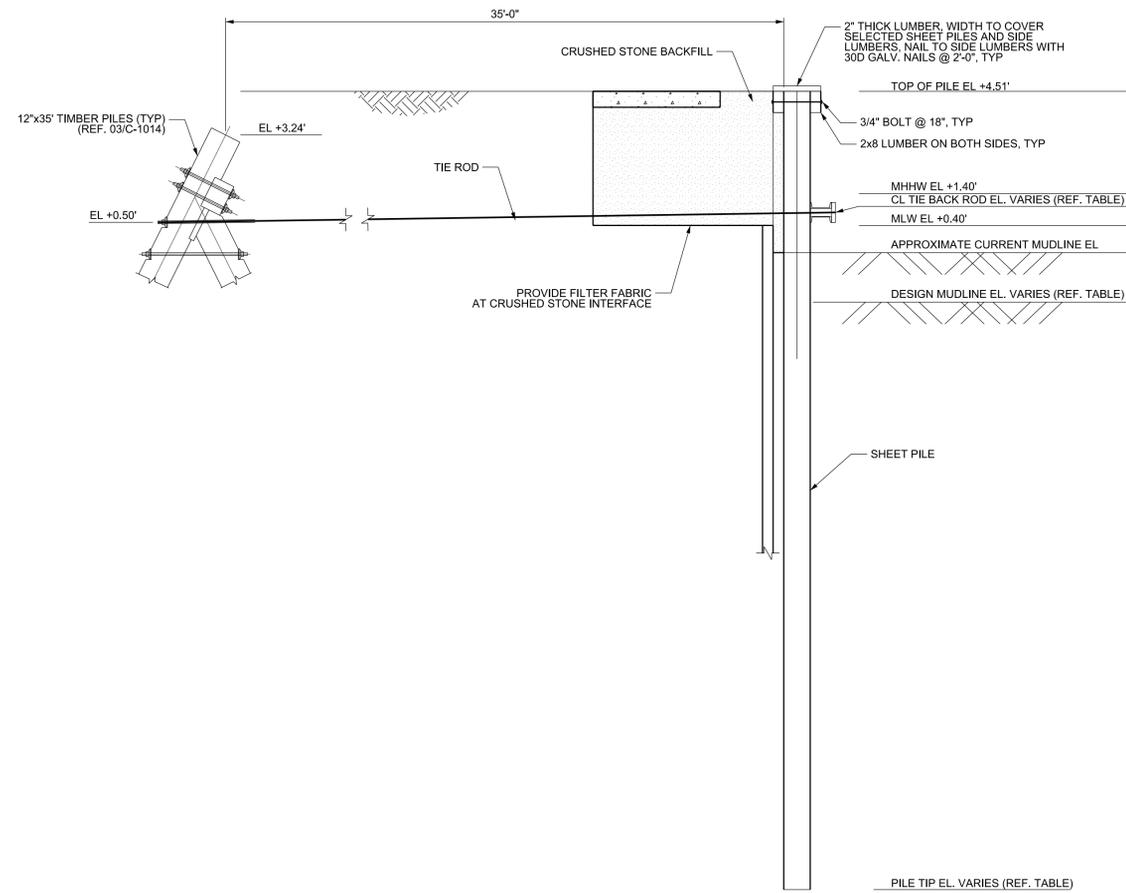
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0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ
ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD

**LEAGUE CITY  
 BOAT RAMP  
 & BULKHEAD**

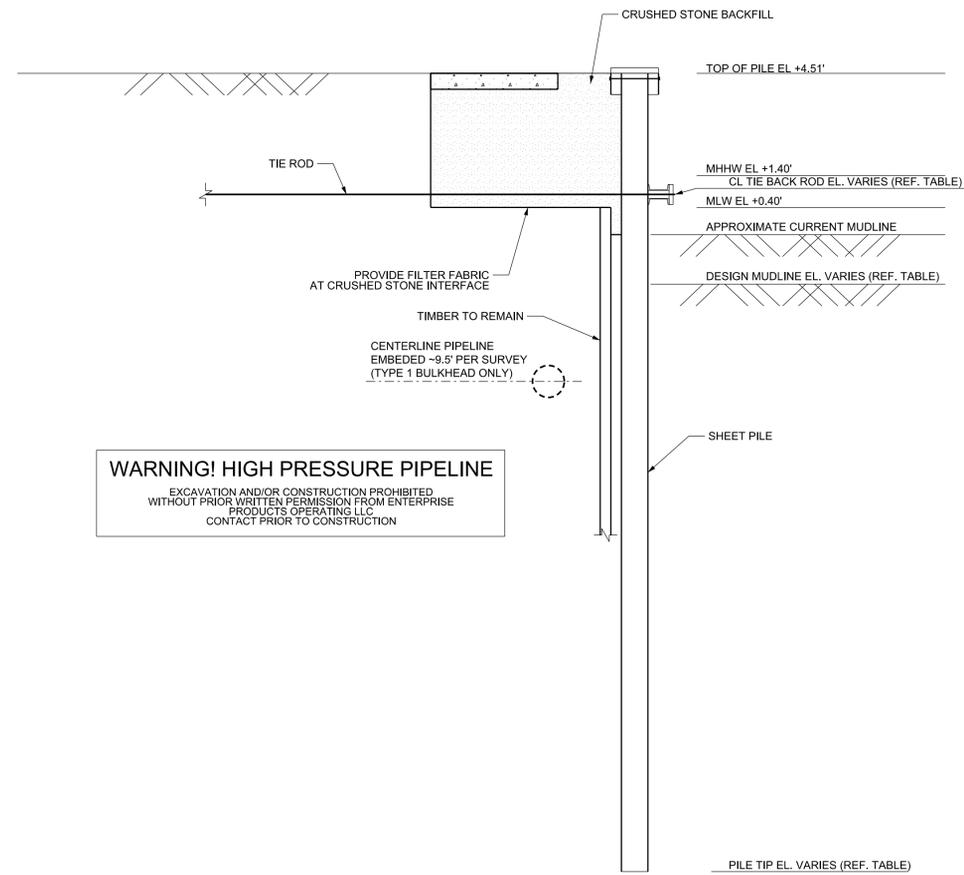
**SHEETPILE ELEVATION**

DRAWN BY	DATE	SCALE	CHKD
AMH	10/09/19	1/2" = 1'-0"	RCW
DRAWING NO.	ISSUE NO.	APPVD	
B-1036-1002-C-1008	1	BZ	

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**01 BULKHEAD TYPE 2 SECTION**  
 SCALE: 3/8" = 1'-0"



**02 BULKHEAD TYPE 1 & 3 SECTION**  
 SCALE: 3/8" = 1'-0" (TYPE 1 SHOWN, TYPE 3 OPPOSITE)

NOTE:  
 REFER TO GENERAL NOTES FOR VINYL SHEET PILE REQUIREMENTS

**BULKHEAD DESIGN DATA**

BULKHEAD TYPE	TIE ROD EL	DESIGN MUDLINE EL	TIP EL	BENDING MOMENT	STIFFNESS, EI	ANCHOR FORCE
	ft	ft	ft	kip-ft / ft	x10 <sup>6</sup> lb-in <sup>2</sup> / ft	kip/ft
1	1.00	-2	-18.5	6.54	130	3.06
2	0.50	-3	-18.5	7.44	130	3.20
3	1.00	-2	-18.5	6.54	130	3.06

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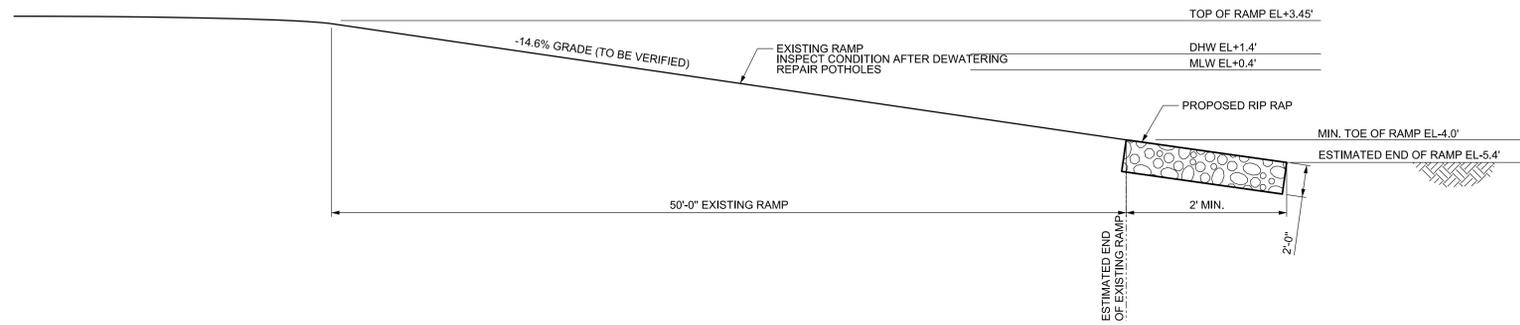
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1	12/28/22	RCW	ISSUE FOR BIDDING & PERMITTING	RCW	BZ
0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ

**LEAGUE CITY BOAT RAMP & BULKHEAD**

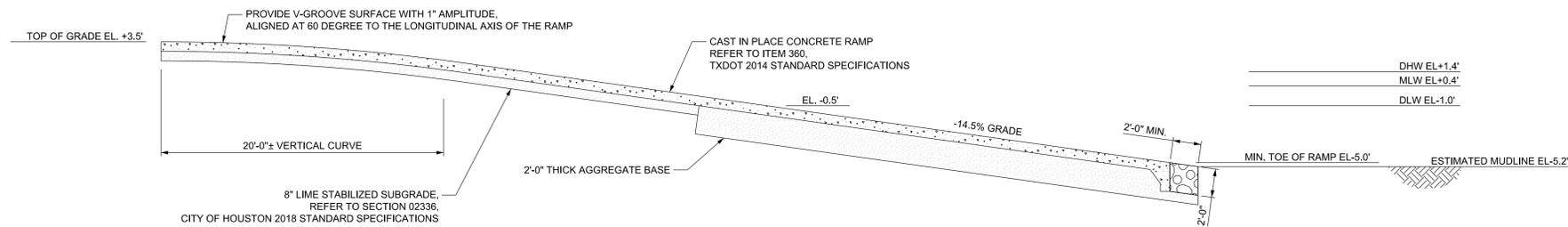
**BULKHEAD TYPICAL SECTION**

DRAWN BY: JRM DATE: 10/09/19 SCALE: 3/8" = 1'-0" CHKD: RCW  
 APPVD: BZ  
 DRAWING NO.: B-1036-1002-C-1009 ISSUE NO.: 1

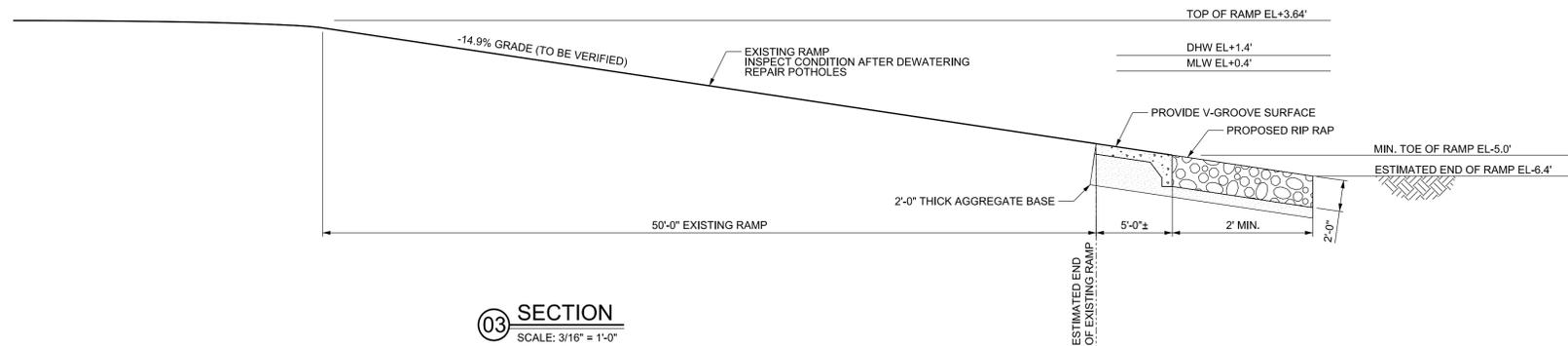
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**01 SECTION**  
 SCALE: 3/16"=1'-0"



**02 SECTION**  
 SCALE: 3/16" = 1'-0"



**03 SECTION**  
 SCALE: 3/16" = 1'-0"

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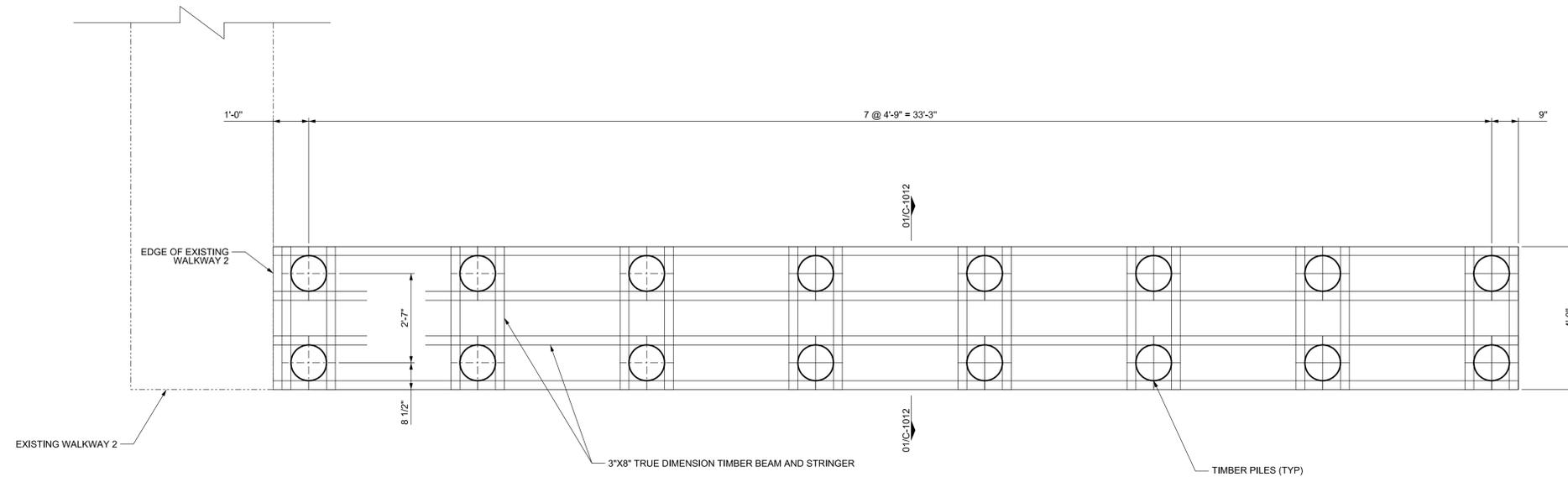
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0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ

**LEAGUE CITY  
 BOAT RAMP  
 & BULKHEAD**

BOAT RAMP & BULKHEAD  
 PROPOSED CONDITION SECTIONS

DRAWN BY	JRM	DATE	10/09/19	SCALE	AS NOTED	CHKD	RCW	
APPVD							BZ	
DRAWING NO.	B-1036-1002-C-1010						ISSUE NO.	1

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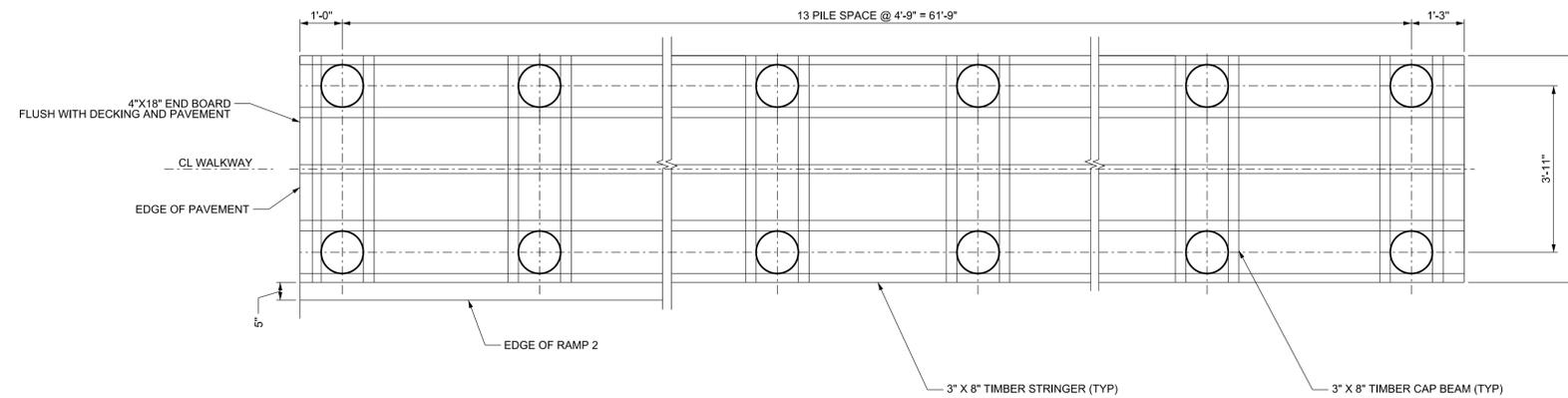


TIMBER PILE SUMMARY

LOCATION	TYPE	SIZE	TIP EL	CUT OFF EL	NO. OF PILES
WALKWAY 2 EXTENSION	TIMBER	12\"X3' FROM TOP 8\"X TIP MIN	-31.53'	+3.47'	16
WALKWAY 1 REPLACEMENT	TIMBER	12\"X3' FROM TOP 8\"X TIP MIN	-31.73'	+3.27'	28

**01 WALKWAY EXTENSION PILING & FRAMING PLANS**

SCALE: 1/2" = 1'-0"  
 (WALKWAY 1 & 2 SIMILAR)  
 \* REF. 02-C-1012 FOR WALKWAY 2 @ BULKHEAD



**01 WALKWAY 1 PILING PLAN & FRAMING PLAN**

SCALE: 1/2" = 1'-0"

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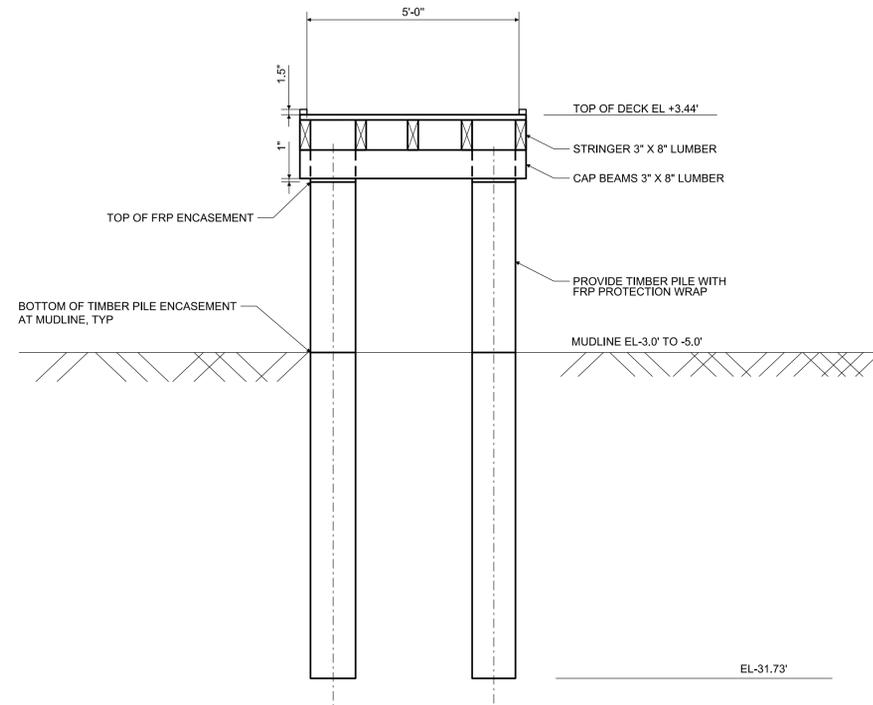
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**LEAGUE CITY  
 BOAT RAMP  
 & BULKHEAD**

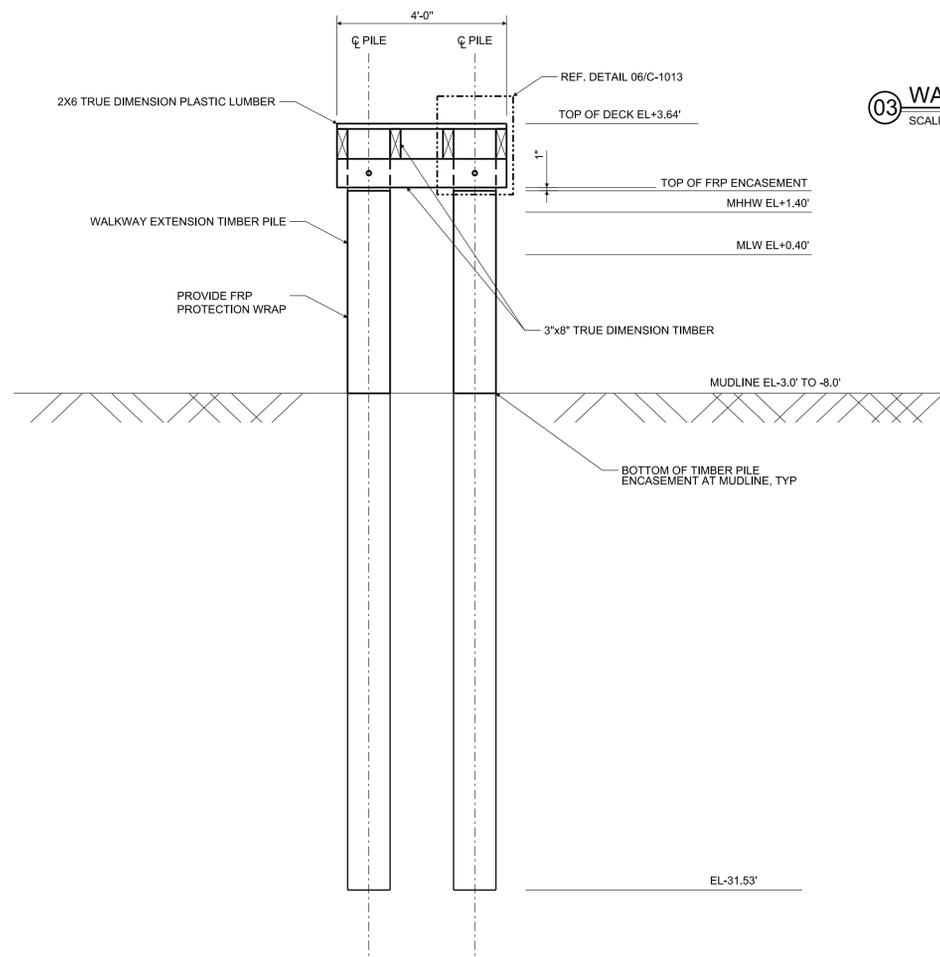
WALKWAY EXTENSION PLAN

DRAWN BY	JRM	DATE	03/29/19	SCALE	1/2" = 1'-0"	CHKD	RCW
DRAWING NO.	B-1036-1002-C-1011			APPVD	BZ	ISSUE NO.	1

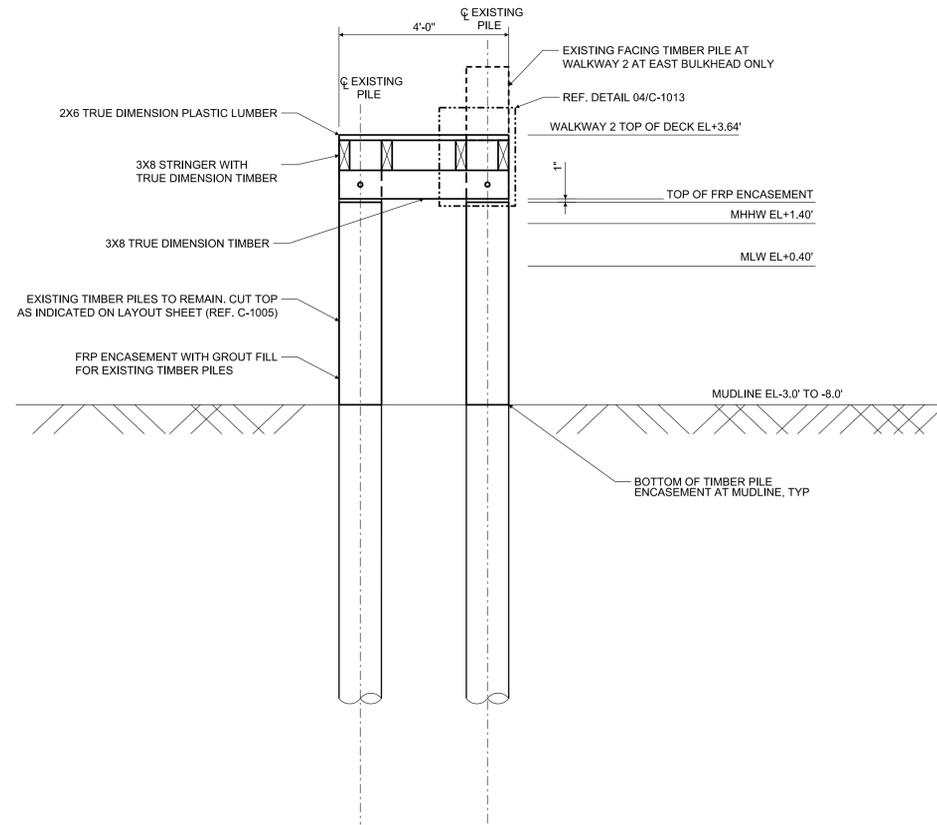
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**03 WALKWAY 1 REPLACEMENT SECTION**  
 SCALE: 1/2" = 1'-0"



**01 WALKWAY EXTENSION SECTION**  
 SCALE: 1/2" = 1'-0"



**02 EXISTING WALKWAY 2 IMPROVEMENT SECTION**  
 SCALE: 1/2" = 1'-0"

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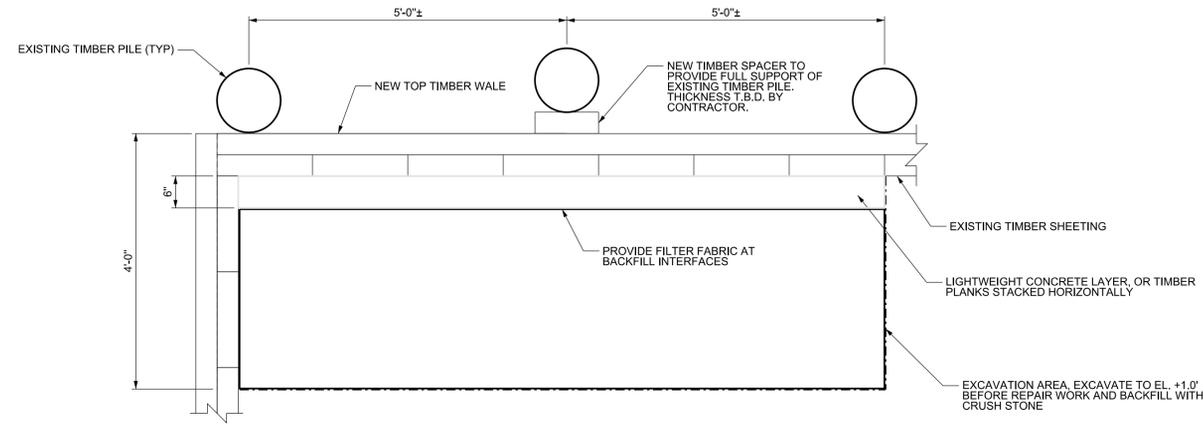
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ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD
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0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ

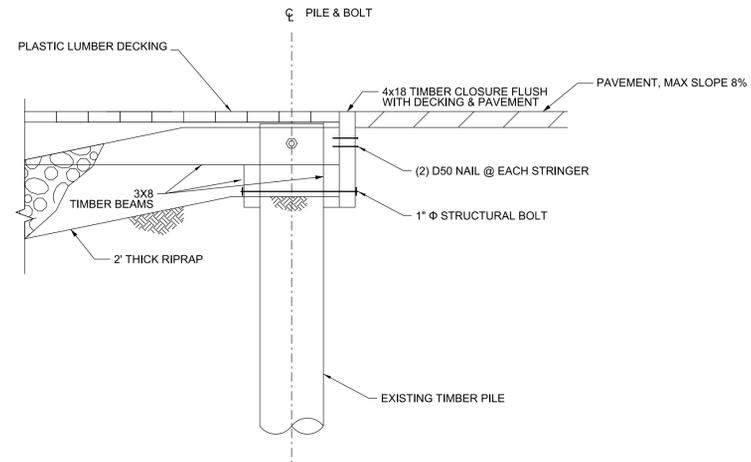
**LEAGUE CITY BOAT RAMP & BULKHEAD**

WALKWAY IMPROVEMENT TYPICAL SECTIONS

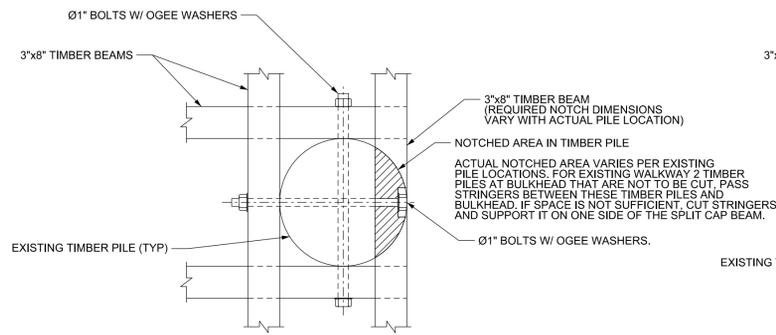
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APPVD						APPVD	BZ	
DRAWING NO.	B-1036-1002-C-1012						ISSUE NO.	1



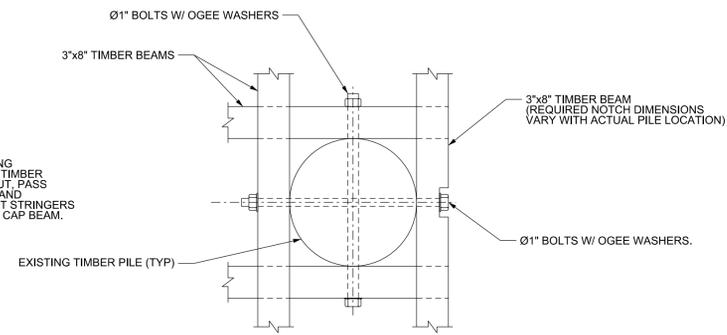
**01 EAST BULKHEAD REPAIR PLAN**  
 SCALE: 3/4" = 1'-0"



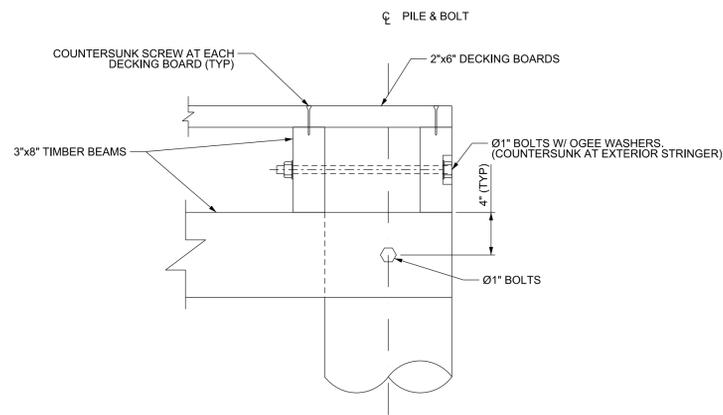
**02 TYPICAL WALKWAY GRADE CONNECTION**  
 SCALE: 3/4" = 1'-0"  
 (EXISTING WALKWAY 2 SHOWN, WALKWAY 1 SIMILAR)



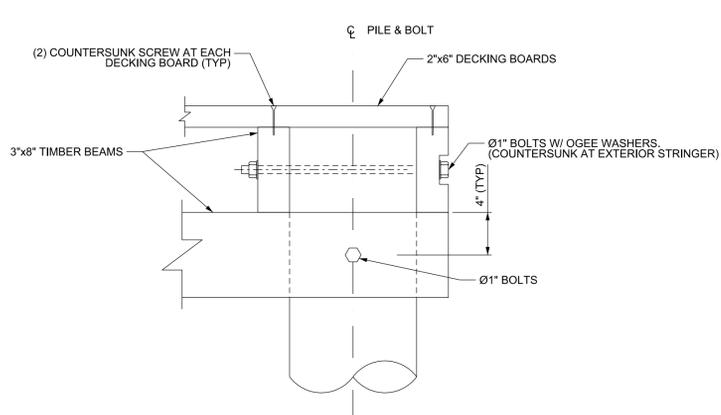
**03 EXISTING WALKWAY 2 CONNECTION DETAIL - PLAN**  
 SCALE: 1-1/2" = 1'-0"



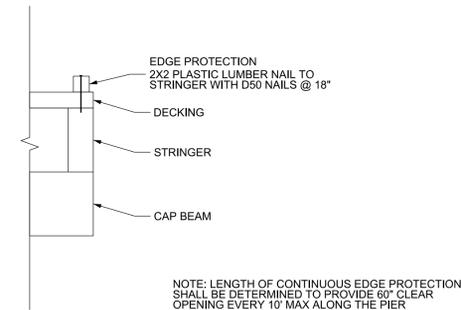
**05 WALKWAY 1 REPLACEMENT AND WALKWAY 2 EXTENSION CONNECTION DETAIL - PLAN**  
 SCALE: 1-1/2" = 1'-0"



**04 EXISTING WALKWAY 2 CONNECTION DETAIL**  
 SCALE: 1-1/2" = 1'-0"



**06 WALKWAY 1 REPLACEMENT AND WALKWAY 2 EXTENSION CONNECTION DETAIL**  
 SCALE: 1-1/2" = 1'-0"



**03 WALKWAY 1 EDGE PROTECTION DETAILS**  
 SCALE: 1-1/2" = 1'-0"

**LJA Engineering, Inc.**  
 Marine Phone 713.953.5200  
 3600 W Sam Houston Pkwy S, Suite 600 Fax 713.953.5026  
 Houston, Texas 77042 FRN - F-1386



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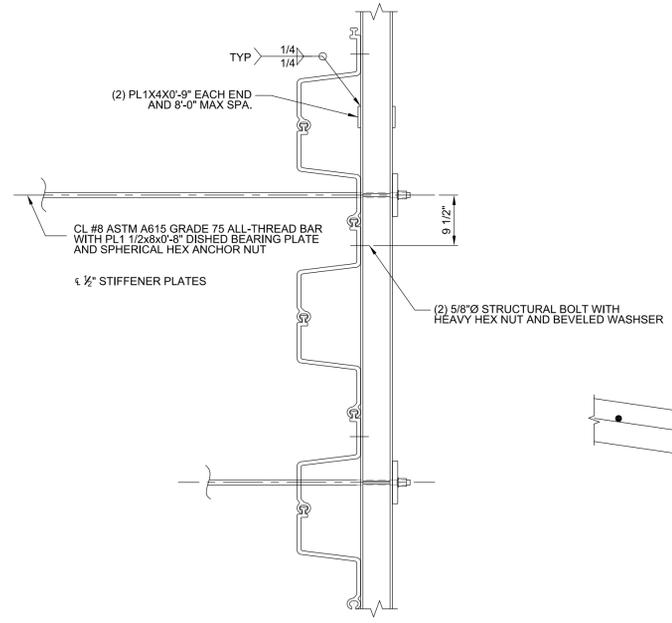
ISSUE	DATE	BY	DESCRIPTION	CHKD	APPD
1	12/28/22	RCW	ISSUE FOR BIDDING & PERMITTING	RCW	BZ
0	11/2/22	RCW	ISSUE FOR BID	RCW	BZ

**LEAGUE CITY BOAT RAMP & BULKHEAD**

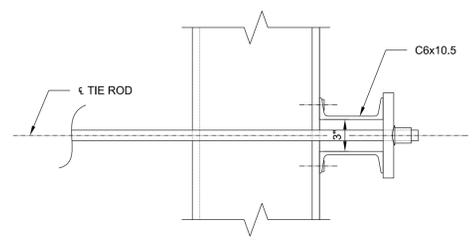
WEST BULKHEAD REPAIR AND MISC. DETAILS

DRAWN BY	JRM	DATE	10/09/19	SCALE	3/4" = 1'-0"	CHKD	RCW	
APPVD						APPVD	BZ	
DRAWING NO.	B-1036-1002-C-1013						ISSUE NO.	1

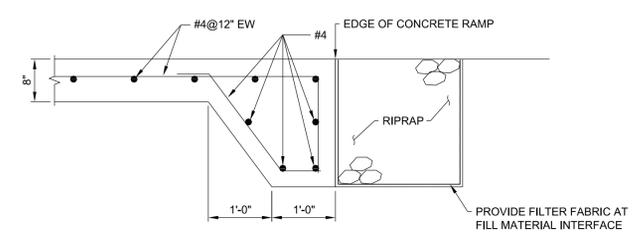
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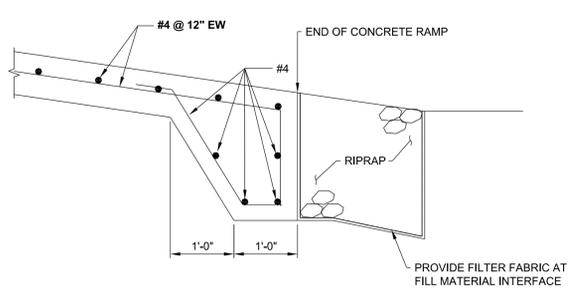
**01 TYPICAL BULKHEAD LAYOUT**  
 SCALE: 3/4" = 1'-0"



**02 BULKHEAD SECTION**  
 SCALE: 1-1/2" = 1'-0"

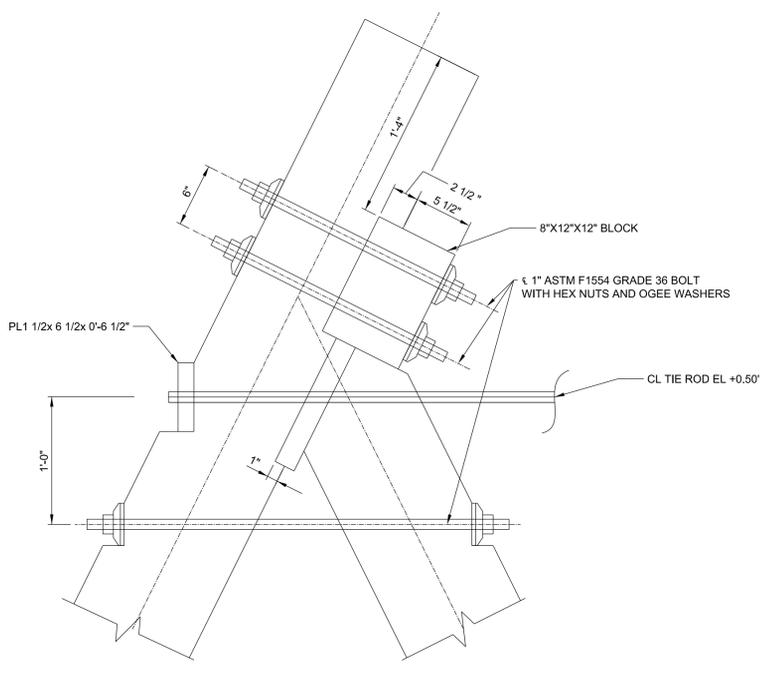


**04 TYPICAL BOAT RAMP REINFORCEMENT**  
 SCALE: 3/4" = 1'-0"

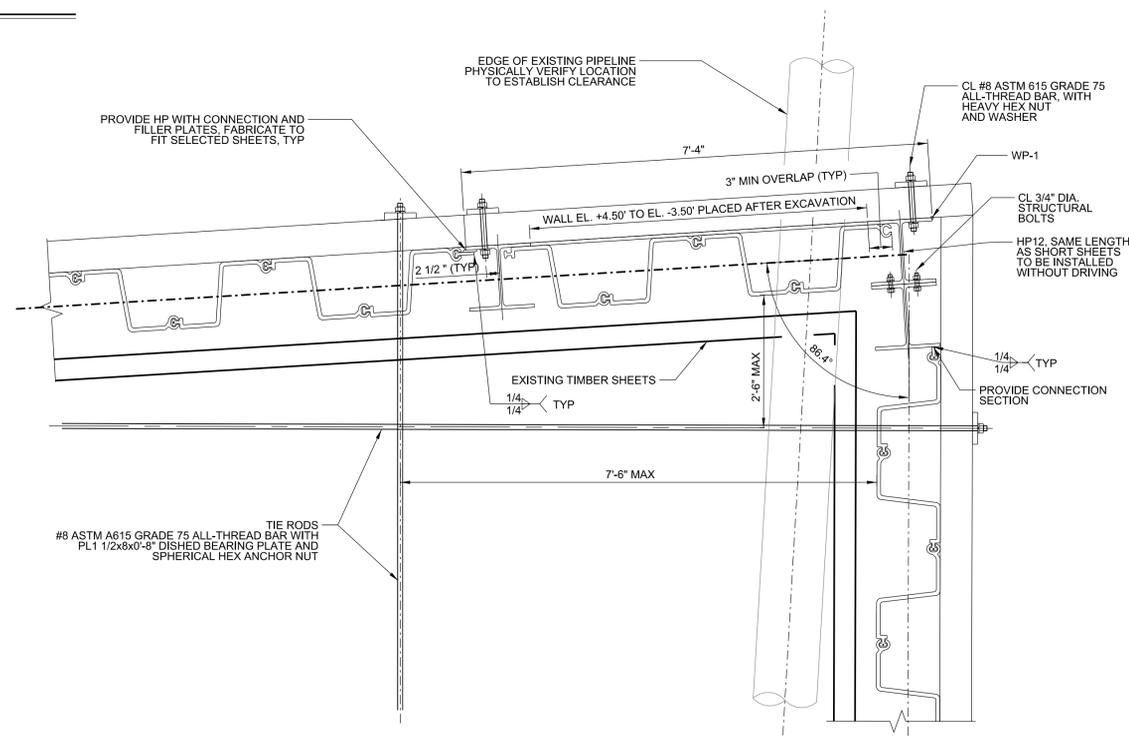


**05 TYPICAL BOAT RAMP TOE DETAIL**  
 SCALE: 3/4" = 1'-0"

**WARNING! HIGH PRESSURE PIPELINE**  
 EXCAVATION AND/OR CONSTRUCTION PROHIBITED WITHOUT PRIOR WRITTEN PERMISSION FROM ENTERPRISE PRODUCTS OPERATING, LLC. CONTACT PRIOR TO CONSTRUCTION.



**03 TYPICAL ANCHOR PILE CONNECTION**  
 SCALE: 1-1/2" = 1'-0"



**06 PLAN - WALL CORNER**  
 SCALE: 3/4" = 1'-0"

- NOTES:
- FOR LAYOUT OF TIE ROD, SEE BULKHEAD LAYOUT DRAWING.
  - ALL RODS, BOLTS, NUTS, AND WASHERS SHALL BE HOT DIP GALVANIZED AFTER FABRICATION, UNLESS NOTED OTHERWISE.

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1	12/28/22	RCW	ISSUE FOR BIDDING & PERMITTING	RCW	BZ
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**LEAGUE CITY BOAT RAMP & BULKHEAD**

MISCELLANEOUS DETAILS

DRAWN BY	JRM	DATE	10/09/19	SCALE	AS NOTED	CHWD	RCW	
APP'D						APP'VD	BZ	
DRAWING NO.	B-1036-1002-C-1014						ISSUE NO.	1