

GENERAL STRUCTURAL NOTES

SOIL ANCHOR NOTES

UNDERWATER FILL NOTES

CONCRETE REPAIR NOTES

CONCRETE REPAIR PAYMENT NOTES

1. THE FOLLOWING IS A GENERAL, NOT ALL INCLUSIVE, SUMMARY OF THE SCOPE OF WORK AT PATRIOT'S POINT, Z-308, AND CEP-175:

PATRIOT'S POINT BULKHEAD:

A. EXCAVATE & DEMOLISH DEBRIS & FILL MATERIAL BEHIND THE EXISTING BULKHEAD.

B. PROVIDE AN ANCHORED COMPOSITE SHEET PILE BULKHEAD BEHIND THE EXISTING DETERIORATED STEEL SHEET PILE BULKHEAD.

C. DEMOLISH EXISTING BULKHEAD DOWN TO THE MUDLINE.

D. PROVIDE A FILTER FABRIC, BACKFILL, AND STONE RIP RAP.

Z-308 BULKHEAD:

A. LOCATION: BREAKWATER - STATION 39+00 TO 37+00 BULKHEAD - STATION 39+00 TO 49+24

B. FENDER SYSTEM:

- DEMOLISH/SALVAGE EXISTING COMPOSITE FENDER SYSTEM
- PROVIDE PRESTRESSED CONCRETE FENDER PILES

C. BULKHEAD REPAIRS:

- SOIL GROUT CURTAIN BEHIND BULKHEAD
- CONCRETE REPAIRS
- CLEAT REPLACEMENT

CEP-175 BULKHEAD:

A. LOCATION: SOUTH FACE - STATION 0+00 TO 9+04.5 WEST FACE - STATION 9+04.5 TO 17+53 NORTH FACE - STATION 17+53 TO 24+97.5

B. FENDER SYSTEM:

- DEMOLISH EXISTING TIMBER FENDER SYSTEM
- PROVIDE PRESTRESSED CONCRETE FENDER PILES (WEST) & COMPOSITE FENDER PILE SYSTEM (NORTH/SOUTH)

C. BULKHEAD REPAIRS:

- SOIL GROUT CURTAIN BEHIND BULKHEAD
- PROVIDE UNDERWATER GEOTEXTILE FABRIC, RIP RAP, AND STONE MATTRESS OVERLAY FOR SHEET PILE TOE STABILIZATION
- SEAWALL REPAIRS BY CONCRETE REPLACEMENT AND SHOTCRETE REPAIRS
- CLEAT REPLACEMENT
- HANDRAIL REPLACEMENT

2. THE STRUCTURAL DRAWINGS HEREIN REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING, SHORING, AND BRACING REQUIRED TO ERECT AND HOLD THE WORK IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK, LATERAL BRACING, AND CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF THE ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

3. UNIT PRICED QUANTITIES TABULATED ON THE DRAWINGS ARE PROVIDED TO ASSIST THE CONTRACTOR, IN PREPARING THE BASE BID. NOT ALL OF THE DEMOLITION AND REPAIR WORK IS REFLECTED IN THE TABLES. REFER TO SPECIFICATIONS SECTION 00 22 13 FOR THE "UNIT PRICED BID ITEMS" AND TO THE DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL ITEMS NOT IDENTIFIED.

4. BACKFILL WITHIN 10 FOOT OF THE BULKHEAD SHALL BE COMPACTED BY A WALK BEHIND VIBRATORY COMPACTOR.

5. ALL ABANDONED BULKHEAD OPENINGS AND ABANDONED UTILITIES REMAINING WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PLUGGED WATER TIGHT WITH CONCRETE PRIOR TO BACKFILLING.

6. WHILE PERFORMING WORK, DO NOT CUT, DAMAGE OR DISTURB EXISTING REINFORCING UNLESS OTHERWISE NOTED.

7. CLEAT LOCATIONS MAY BE ADJUSTED IN ORDER TO AVOID UTILITIES OR OBSTRUCTIONS NOT SHOWN ON DRAWINGS OR FOUND DURING EXCAVATION. ALL PROPOSED LOCATIONS SHALL BE APPROVED BY THE CONTRACTING OFFICER PRIOR TO RELOCATION.

8. UNLESS OTHERWISE NOTED, ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE FOR REFERENCE ONLY, TO MATCH THE REFERENCE "AS-BUILT" DRAWINGS. REFER TO THE CIVIL DRAWINGS FOR ELEVATIONS BASED OFF OF THE NAVAL STATION LOW WATER DATUM. REFER TO THE CIVIL DRAWINGS FOR TOP OF WALL AND GRADE ELEVATIONS.

1. THE CONTRACTOR SHALL HIRE A SPECIALTY PILE DESIGNER OF RECORD, PROFESSIONALLY LICENSED IN THE COMMONWEALTH OF VIRGINIA, TO EVALUATE THE SOIL CONDITIONS AND DESIGN AN EARTH ANCHOR SYSTEM FOR THE PATRIOT'S POINT BULKHEAD. SUBMIT A STAMPED COPY OF THE DESIGN FOR CONTRACTING OFFICER APPROVAL PRIOR TO TEST PILE INSTALLATION. DESIGN SUBMITTAL SHALL INCLUDE, BUT NOT BE LIMITED TO, DATA REGARDING: TYPE, MATERIAL, AND SIZE OF SYSTEM AND COMPONENTS; MAXIMUM TORQUE RATING OF SYSTEM, CALCULATIONS DETERMINING MINIMUM INSTALLING TORQUE AND REQUIRED CAPACITIES. THE DESIGN SHALL EVALUATE BOTH THE GEOTECHNICAL AND STRUCTURAL PILE CAPACITIES.

2. EACH ANCHOR SHALL BE DESIGNED TO MEET THE LOAD REQUIREMENTS SUMMARIZED BELOW:

A. ALLOWABLE AXIAL TENSILE CAPACITY.....14 KIPS

ANCHORS SHALL HAVE A MINIMUM FACTOR OF SAFETY OF 2.0 ABOVE THE ALLOWABLE CAPACITIES SHOWN. THIS FACTOR OF SAFETY SHALL BE INCORPORATED IN THE CAPACITY AND TESTING OF SOIL ANCHORS.

3. AT A MINIMUM, TENSION RESISTING FEATURES SHALL BE LOCATED OUTSIDE THE ACTIVE FAILURE PLANE. THE ACTUAL LENGTH OF ANCHORS SHALL BE DETERMINED BY THE SPECIALTY DESIGNER AND THE RESULTS OF THE TEST PILE PROGRAM. DO NOT ORDER PRODUCTION PILES UNTIL THE SPECIALTY PILE DESIGNER HAS DETERMINED THE REQUIRED PILE LENGTH AND THE FORMAL LOAD TEST REPORT HAS BEEN REVIEWED AND APPROVED BY THE CONTRACTING OFFICER.

4. PILING SHALL BE INSTALLED BY A CERTIFIED CONTRACTOR WITH EXPERIENCE WITH THE INSTALLATION OF SOIL ANCHORS ON AT LEAST THREE SIMILAR PROJECTS IN COASTAL ENVIRONMENTS.

5. NOTIFY CONTRACTING OFFICER AND STRUCTURAL ENGINEER AT LEAST 24 HOURS (BUSINESS DAY) PRIOR TO INSTALLING THE TEST PILES.

6. ALL PILING SHALL BE INSTALLED TO A DEPTH AND RESISTANCE EQUAL TO OR GREATER THAN THAT OF THE SUCCESSFULLY LOADED TEST PILE.

7. ALL PILING SHALL BE PLACED TO A TOLERANCE TO WORK WITH THE SHOWN WALE SYSTEM.

COMPOSITE SHEET PILE NOTES

1. SHEET PILE AND ACCESSORIES SHALL BE MANUFACTURED AND FABRICATED PER THE CODE OF STANDARD PRACTICE FOR THE FABRICATION AND INSTALLATION OF PULTRUDED FRP STRUCTURES.

2. SHEET PILES SHALL BE VINYL ESTER RESIN WITH NOT MORE THAN A 15% REDUCTION IN STRENGTH AND 5% REDUCTION IN MODULUS OF ELASTICITY FOR LONG TERM USE IN SALT WATER. SHEET PILES SHALL BE SUITABLE FOR LONG TERM ULTRAVIOLET EXPOSED CONDITIONS.

3. MATERIAL PROPERTIES OF PROPOSED FRP SHEET PILES AND ACCESSORIES SHALL BE CHARACTERIZED PER ASTM D7290-06. MINIMUM ALLOWABLE STRESS DESIGN ULTIMATE (UNFACTORED) MOMENT CAPACITY SHALL BE 54,600 FT LBS/FT OF WALL. MINIMUM ALLOWABLE STRESS DESIGN ULTIMATE (UNFACTORED) SHEAR CAPACITY SHALL BE 47,200 LBS/FT. MINIMUM CHARACTERISTIC FULL SECTION MODULUS OF ELASTICITY SHALL BE 3,670,000 PSI. MINIMUM ASD ULTIMATE (UNFACTORED) WEB BUCKLING CAPACITY FROM A 8" WALE SECTION SHALL BE 10,600 LBS/FT OF WALL.

4. FIBER REINFORCEMENTS SHALL MEET THE MINIMUM TENSILE STRENGTH OF 290 KSI PER ASTM D2343.

GROUT CURTAIN NOTES

1. REFER TO DRAWING NOTES AND SPECIFICATIONS.

SPECIAL INSPECTIONS

1. REFER TO SPECIFICATIONS.

COMPOSITE FENDER PILE NOTES

1. REFER TO DRAWING NOTES AND SPECIFICATIONS.

PRESTRESSED CONC FENDER PILE NOTES

1. REFER TO DRAWING NOTES AND SPECIFICATIONS.

1. CONTRACTOR SHALL CONDUCT A PRE-CONSTRUCTION SIDE SCAN AND BATHYMETRIC SURVEYS OF AREAS TO RECEIVE FILL ON THE WATER SIDE OF THE BULKHEADS TO SUPPORT EXECUTION, DOCUMENT WORK, AND VERIFY CONFORMANCE WITH PLANS AND SPECIFICATIONS. SUBMIT CADD DRAWING WITH RESULTS TO THE CONTRACTING OFFICER.

2. CONTRACTOR SHALL PERFORM PROGRESSIVE POST BACKFILL BATHYMETRIC SURVEYS TO VERIFY TARGET RESTORATION DEPTHS HAVE BEEN ATTAINED.

3. CONTRACTOR MUST MAINTAIN A STABLE CUT/FILL GEOMETRY TO ENSURE REQUIRED THICKNESS OF LAYERS ARE MET. MATERIAL THAT SLOUGHS INTO REMOVAL AREAS, OR OFF OF FILL AREAS SHALL BE MANAGED AND REPLACED AS NEW WORK IS COMPLETED.

4. BACKFILLING SHALL BE COMPLETED TO GRADES AND ELEVATIONS SHOWN.

5. PROVIDE TURBIDITY CURTAIN AROUND PERIMETER OF UNDERWATER EXCAVATION/FILL WORK IN ACCORDANCE WITH SPECIFICATIONS AND EROSION AND SEDIMENT CONTROL REQUIREMENTS. AFTER RECEIVING ACCEPTANCE FROM THE CONTRACTING OFFICER AND EPA REPRESENTATIVE, CONTRACTOR SHALL REMOVE PERIMETER TURBIDITY CONTROLS (PROVIDED TURBIDITY LEVELS WITHIN THE REMOVAL AREA ARE BELOW ACTION LEVELS).

6. CONTRACTOR SHALL COMPLETE BASELINE TURBIDITY MONITORING AS REQUIRED.

7. UNDERWATER FILL DESIGN BASED ON SIGNIFICANT WAVE HEIGHT OF 5.00' AND DEPTH-AVERAGED MEAN CURRENT VELOCITY OF 4.0 FT/SECOND.

CONCRETE NOTES

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE". HOT WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 305. COLD WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 306.

2. CONCRETE SHALL BE NORMAL WEIGHT AND SHALL OBTAIN A 28 DAY COMPRESSIVE STRENGTH, f'c, OF 4000 PSI.

3. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED. REINFORCING SHALL BE EPOXY COATED WHERE INDICATED ON THE DRAWINGS.

4. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185, SHEET TYPE AND HOT DIPPED GALVANIZED. ROLL TYPE NOT ACCEPTABLE.

5. NON-SHRINK GROUT SHALL BE NON-METALLIC CEMENTITIOUS GROUT IN ACCORDANCE WITH ASTM C1107. f'c = 6,000 PSI.

6. ALL REINFORCING STEEL AND EMBEDDED ITEMS, SUCH AS ANCHOR BOLTS, SHALL BE SET, TIED IN PLACE, TESTED AND INSPECTED PRIOR TO POURING OF CONCRETE. DO NOT FIELD BEND BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE UNLESS SPECIFICALLY INDICATED OR APPROVED BY THE CONTRACTING OFFICER.

7. ALL REINFORCING STEEL SHALL BE HELD SECURELY IN PLACE TO PREVENT DISLOCATION DURING THE POURING OPERATION. SLAB REINFORCING BARS SHALL BE SUPPORTED ON NON CORROSIVE AND NON POROUS HIGH CHAIRS AND BAR SPACERS TO MAINTAIN REQUIRED POSITION WITHIN THE STRUCTURE (SLAB, PILE CAP, ETC).

8. UNLESS OTHERWISE NOTED, PROVIDE 3" MINIMUM CONCRETE COVER FOR REINFORCEMENT .

9. ALL EDGES OF PERMANENTLY EXPOSED CONCRETE SURFACES SHALL BE CHAMFERED 3/4", UNLESS OTHERWISE NOTED.

10. PROVIDE CONSTRUCTION AND EXPANSION JOINTS AS INDICATED.

11. ALL REINFORCING STEEL SHALL BE LAPPED A MINIMUM OF 52 BAR DIAMETERS UNLESS MECHANICAL CONNECTORS ARE PROVIDED.

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11. ALL REINFORCING STEEL SHALL BE LAPPED A MINIMUM OF 52 BAR DIAMETERS UNLESS MECHANICAL CONNECTORS ARE PROVIDED.

1. ALL CONCRETE REPAIRS SHALL BE IN ACCORDANCE WITH ACI 546R-14.

2. CONCRETE PATCHING MATERIAL SHALL BE NORMAL WEIGHT AND OBTAIN A 28 DAY COMPRESSIVE STRENGTH, f'c, OF 4000 PSI, ASTM C150-TYPE II, AND A WATER/CEMENT RATIO = 0.40 MAX.

3. WHERE NEW REPAIRS ARE REQUIRED ON PREVIOUSLY REPAIRED SURFACES, REMOVED EXISTING CONCRETE REPAIR DOWN TO SOUND CONCRETE AND PROVIDE NEW REPAIR IN ACCORDANCE WITH DETAILS SHOWN ON THE APPROPRIATE SHEETS. DETAILS OF THE PREVIOUS REPAIRS ARE SIMILAR TO THE DETAILS SHOWN AND MAY INCLUDE WIRE REINFORCEMENT.

4. REPAIR AREAS, WHICH ARE DELAMINATED OR CRACKED SO SEVERELY THAT SPALLING IS IMMINENT, HAVE BEEN INCLUDED IN THE QUANTITIES AS SPALLED REPAIRS. SUCH AREAS SHALL BE CHIPPED DOWN ALONG THE DELAMINATION/CRACK AND REPAIRED AS SHOWN FOR SPALLED AREAS, UNLESS OTHERWISE NOTED.

5. CHIP AWAY ALL LOOSE, SPALLED, CRACKED, DELAMINATED OR DETERIORATED CONCRETE TO SOUND CONCRETE OR 1" MINIMUM BEHIND EXISTING REINFORCING STEEL, WHICHEVER IS GREATER, UNLESS OTHERWISE NOTED.

6. REMOVE AND REPAIR ALL DETERIORATED CONCRETE IN THE AREA OF NEW WORK THAT WOULD ADVERSELY AFFECT THE PROPER INSTALLATION OF THE NEW WORK (FENDERS, TIE-BACKS, ETC).

7. MANUALLY OPERATED CHIPPING HAMMERS SHALL BE USED FOR CONCRETE DEMOLITION (MAXIMUM 30 LB).

8. WHENEVER REINFORCING STEEL HAS BEEN REDUCED IN AREA TO 75% OR LESS OF THE ORIGINAL AREA, PROVIDE REPAIRS AS SHOWN IN THE "EXISTING REINFORCING REPAIR" DETAIL ON SHEET SD502. NOTE: ASSUMING THE 75% AREA REDUCTION IS UNIFORM THROUGHOUT THE BAR CROSS-SECTION, THE REINFORCING BARS WILL HAVE THE FOLLOWING REDUCED DIAMETERS:

#4 BAR DIAMETER WHEN 75% OF BAR AREA REMAINING = 0.43"

#5 BAR DIAMETER WHEN 75% OF BAR AREA REMAINING = 0.54"

#6 BAR DIAMETER WHEN 75% OF BAR AREA REMAINING = 0.65"

#8 BAR DIAMETER WHEN 75% OF BAR AREA REMAINING = 0.86"

PNEUMATICALLY APPLIED CONCRETE REPAIR NOTES

1. ALL SHOTCRETE SHALL BE IN ACCORDANCE WITH ACI 506R-16.

2. THE CONTRACTOR SHALL PROTECT ALL UTILITIES FROM DAMAGE AND SHOTCRETE OVERSPRAY. THE CONTRACTING OFFICER SHALL BE CONTACTED IN ADVANCE OF ANY WORK WHICH MIGHT AFFECT UTILITIES, TO ENSURE THAT THOSE UTILITIES ARE PROPERLY TAGGED-OUT, ETC.

3. PNEUMATICALLY APPLIED CONCRETE (SHOTCRETE/GUNITE) SHALL BE USED ON ALL SPALL REPAIRS BELOW THE DECK. CEMENT TYPE SHALL BE TYPE II, WITH A 28 DAY COMPRESSIVE STRENGTH f'c = 5000 PSI. ALL PNEUMATICALLY APPLIED CONCRETE SHALL CONTAIN POLYPROPYLENE FIBERS AND BE IN ACCORDANCE WITH THE SPECIFICATIONS.

4. PRIOR TO APPLICATION, REMOVE ALL DETERIORATED CONCRETE FROM AREAS TO RECEIVE PNEUMATICALLY APPLIED CONCRETE. CLEAN (INCLUDING ALL EXPOSED REINFORCING) BY SANDBLASTING, FOLLOWED BY SCOURING WITH WATER JETS AND REMOVING SURFACE WATER WITH AIR JETS. PRIOR TO APPLYING PNEUMATIC CONCRETE, WET ALL SURFACES WITH FRESH WATER AND PREP SURFACE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

5. FINISH ALL SURFACES TO MATCH ADJACENT SURFACES. APPLY TWO COATS OF WHITE PIGMENTED MEMBRANE FORMING COMPOUND IN ACCORDANCE WITH THE SPECIFICATIONS AND MANUFACTURER'S INSTRUCTIONS AS SOON AS RECOMMENDED BY MANUFACTURER.

1. THE LOCATIONS AND QUANTITIES OF REPAIRS SHOWN ON THE DRAWINGS ARE APPROXIMATE. QUANTITIES SHOWN ARE BASED UPON AVERAGE LENGTH AND WIDTH DIMENSIONS AND INDICATE THE AREA TO BE CHIPPED, CLEANED, AND TO RECEIVE REPAIRS.

2. THE CONTRACTOR SHALL FIELD VERIFY THE DIMENSIONS, ELEVATIONS, ETC, NECESSARY FOR ALL REPAIR OPERATIONS. THE EXACT EXTENT OF UNSOUND CONCRETE TO BE REMOVED SHALL BE DETERMINED DURING THE DEMOLITION AND SHALL BE INSPECTED AND APPROVED BY THE CONTRACTING OFFICER PRIOR TO APPLYING REPAIR MATERIAL.

3. THE NOTATIONS: H1, W1 & L (LENGTH) REFER TO THE AVERAGE MEASUREMENTS WHICH WILL BE TAKEN TO VERIFY THE EXTENT OF REPAIRS IN THE FIELD. THESE AVERAGE DIMENSIONS WILL BE USED TO OBTAIN THE ACTUAL PAY QUANTITIES FOR REPAIRS.

NOTE: THE DEPTH OF THE CHIPPED AREAS, D1, WILL VARY AND SHALL NOT BE MEASURED FOR PAY QUANTITIES.

4. REPAIR QUANTITIES SHALL BE MEASURED, POST DEMOLITION & PRE REPAIR MATERIAL APPLICATION, FOR PAYMENT BY THE FOLLOWING FORMULAS (REFER TO SPECIFICATIONS FOR BID QUANTITIES):

TYPE 1: BOTTOM CORNER SPALL REPAIR: H1 X L = SF

TYPE 2: TOP CORNER SPALL REPAIR: H1 X L = SF

TYPE 3: CRACK REPAIR: W1 X L = SF

TYPE 4: UNDERWATER SPALL REPAIR: W1 X H1 = SF

TYPE 5: REINFORCING REPAIR: LF

TYPE 6: FASCIA AND CORNER REPAIR: H1 X L = SF

TYPE 7: PILE CAP SOFFIT REPAIR: W1 X L = SF

TYPE 8: PILE CAP TOP REPAIR: W1 X L = SF

TYPE 9: CONCRETE DECK REPAIR: W1 X L = SF

TYPE 10: CURB REPAIR FULL: LF

TYPE 11: CURB REPAIR PARTIAL: W1 X L = SF

TYPE 12: CLEAT REPLACEMENT: EA

TYPE 13: EXPANSION JOINT REPAIR: LF

| DATE | DESCRIPTION | BY | CHK | CLT |
|------|-------------|----|-----|-----|
| | | | | |



FOR COMMANDER NAVFAC 7-12-16

DAVE SEARS

SATISFACTORY TO DATE: 6/17/2016

DES: CMR | DRW: KAD | CHK: CLT

DESIGN MANAGER: EDDY THEISZ

BRANCH MANAGER: CRY

CHIEF ENGINEER: J. HASTE, P.E.

FIRE PROTECTION

NAVFAC DRAWING NO. 12,729,698

SHEET 43 OF 158

DEPARTMENT OF THE NAVY
NAVFACILITIES ENGINEERING COMMAND - MID-ATLANTIC
HAMPTON ROADS IPT - FMD NORFOLK
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA

CEP-175 AND Z-308 BULKHEAD REPAIR

GENERAL STRUCTURAL NOTES

SCALE: AS NOTED

PROJECT NO. 1370817

CONSTR. CONTR. NO. N/A

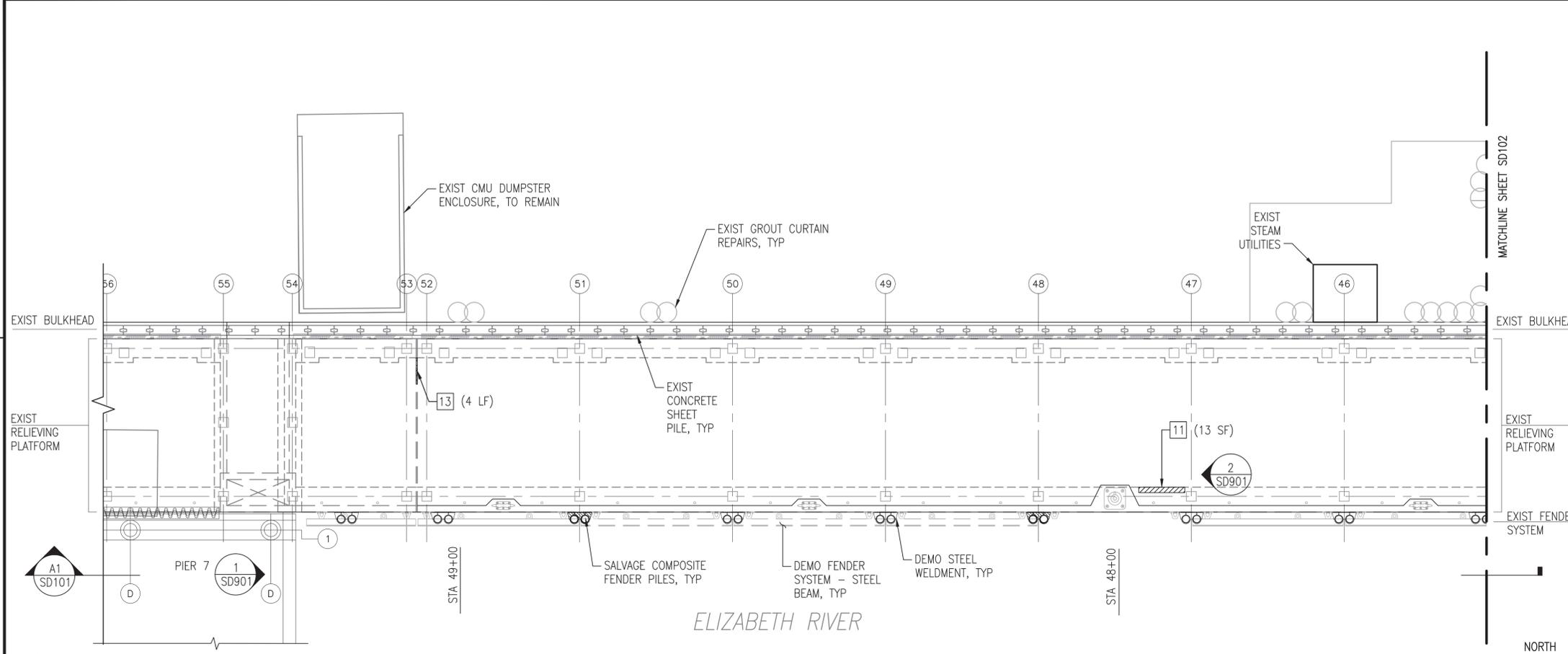
NAVFAC DRAWING NO. 12,729,698

SHEET 43 OF 158

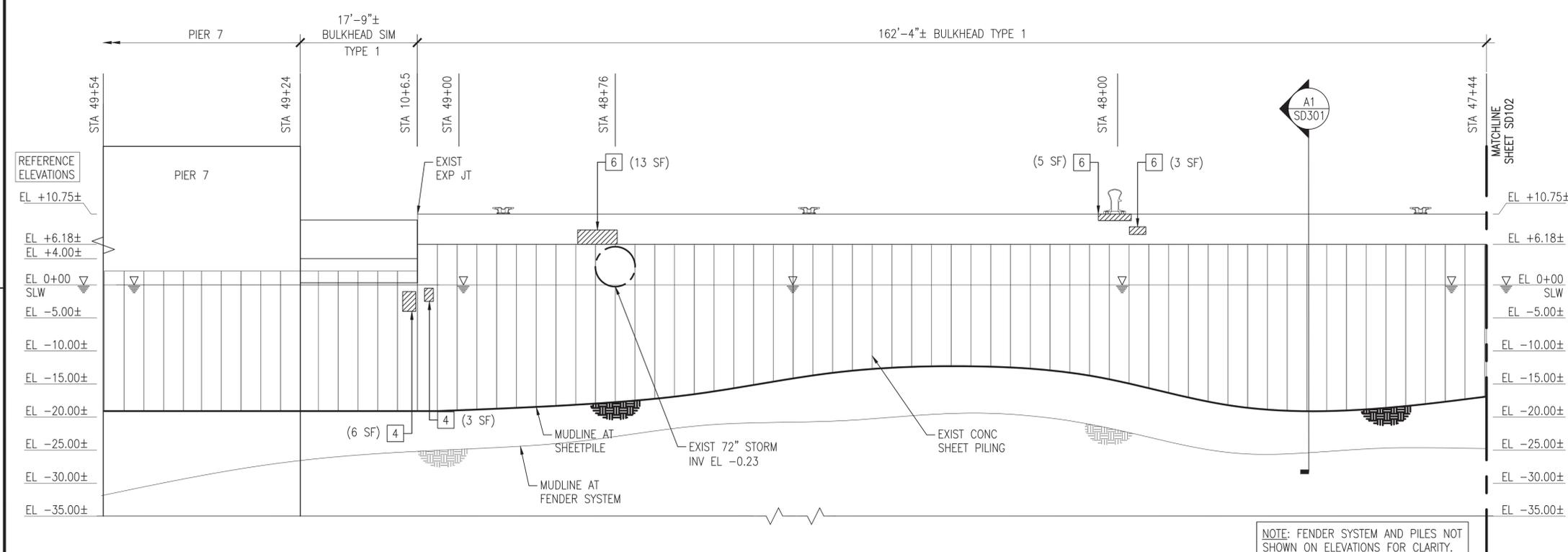
S-001

DRAWING REVISION: 10 MARCH 2009

FILE NAME: P:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD100_SERIES.dwg LAYOUT NAME: SD101 STRUCTURAL PLAN & ELEV (1 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:40pm USER: kimerly.abasz



C1 PLAN - Z-308 BULKHEAD (1 OF 7)
SCALE: 1" = 10'



A1 ELEVATION
SCALE: 1" = 10'

GENERAL SHEET NOTES @ Z-308

- DEMOLISH Z-308 BULKHEAD COMPOSITE FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHOCKS, WALES, BLOCKING, WELDMENTS, RUBBER COMPONENTS, CHAIN, AND SPACERS.
- FULLY EXTRACT AND SALVAGE ALL IDENTIFIED COMPOSITE PILES.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
- ELEVATIONS SHOWN ON THE SD SERIES DRAWINGS ARE NOTED AS REFERENCE ELEVATIONS, AND CORRESPOND TO THE PROVIDED AS-BUILT DRAWINGS FOR THE BULKHEAD, WITH THE TOP OF CURBING ELEVATION AT +11.0 FEET ABOVE MLW. THE CONTRACTOR SHALL SET UP TEMPORARY BENCHMARKS AND COORDINATE REAL TIME ELEVATIONS WITH THE CIVIL DRAWINGS AND DATUM PROVIDED ON G-002.
- BULKHEAD REPAIR TYPES AND ESTIMATED QUANTITIES ARE IDENTIFIED ON THE PLANS AND ELEVATIONS AS FOLLOWS. REFER TO SHEETS SD502, SD503, AND SD504 FOR THE REPAIR DETAILS.



TABULATED DEMOLITION / SALVAGE QUANTITIES (THIS SHEET)

| SYMBOL | ITEM | QUANTITY | UNIT |
|--------|------------------------------------|----------|------|
| ○ | SALVAGE COMPOSITE PILE | 18 | EA |
| ⊗ | DEMOLISH "MISSING" COMPOSITE PILE | - | EA |
| ⊖ | DEMOLISH STEEL CHOCK W/SPACERS | 156 | LF |
| ⊗ | DEMOLISH RUBBER SECTIONS W/SPACERS | 15 | EA |
| ⊗ | DEMOLISH STEEL WELDMENTS | 7 | EA |
| ⊗ | DEMOLISH "MISSING" STEEL WELDMENTS | 2 | EA |
| ⊖ | DEMOLISH 42" CLEAT | - | EA |

TABULATED "UNIT PRICED" REPAIR QUANTITIES (THIS SHEET)

| REPAIR TYPE | ITEM | QUANTITY | UNIT |
|-------------|---|----------|------|
| 1 | PLATFORM SPALL REPAIR - BOTTOM CORNER | - | SF |
| 2 | PLATFORM SPALL REPAIR - UPPER CORNER | - | SF |
| 3 | CRACK REPAIR | - | SF |
| 4 | SHEET PILE & UNDERWATER SPALL REPAIR | 9 | SF |
| 5 | REINFORCING REPAIR | - | LF |
| 6 | PILE CAP SPALL REPAIR - CORNER & FASCIA | 21 | SF |
| 7 | PILE CAP SOFFIT REPAIR - UNDERNEATH | - | SF |
| 8 | PILE CAP REPAIR - TOP | - | SF |
| 9 | CONCRETE DECK REPAIR - TOP | - | SF |
| 10 | CURB REPLACEMENT | - | LF |
| 11 | CURB REPAIR | 13 | SF |
| 12 | CLEAT REPLACEMENT | - | EA |
| 13 | EXPANSION JOINT REPAIR | 4 | LF |

NOTE: ALL QUANTITIES (BOTH TABLES) ARE APPROXIMATE AND REPRESENT THE OVERALL EXTENT OF WORK REQUIRED AT THAT LOCATION.

KEY PLAN

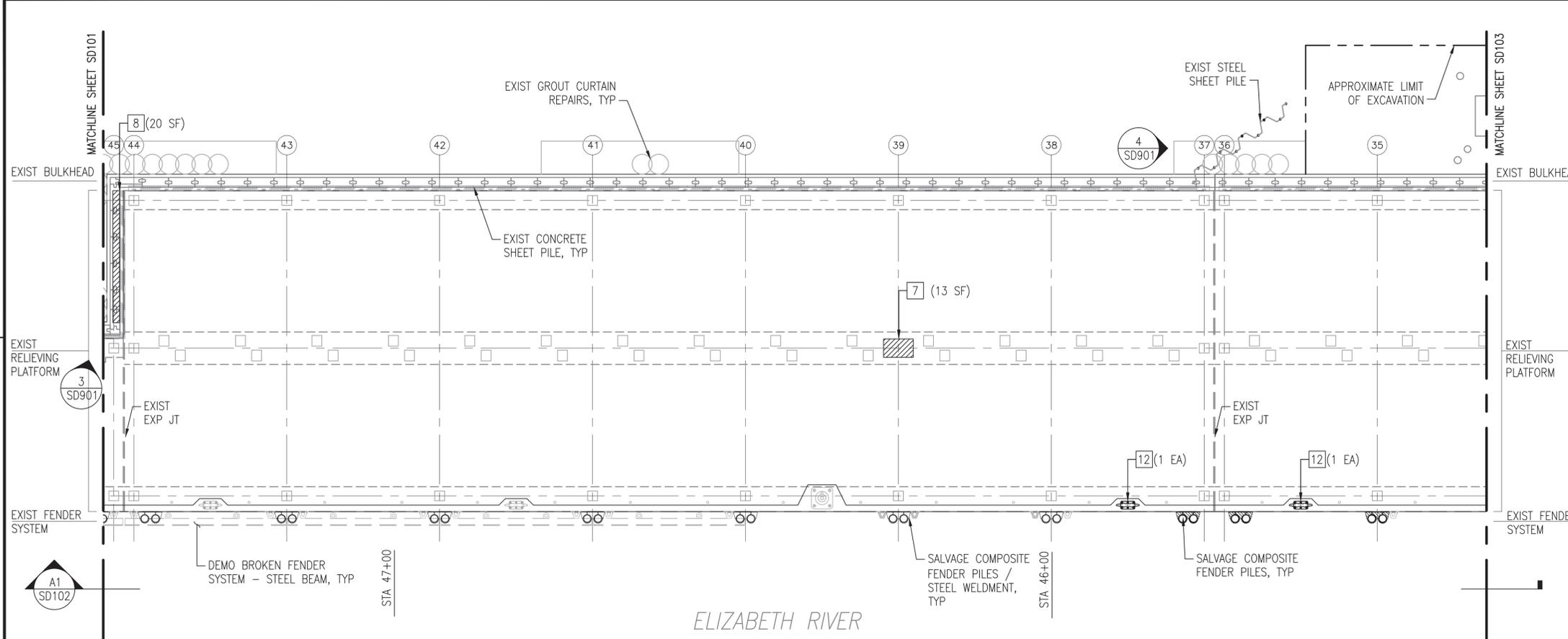


GRAPHIC SCALE

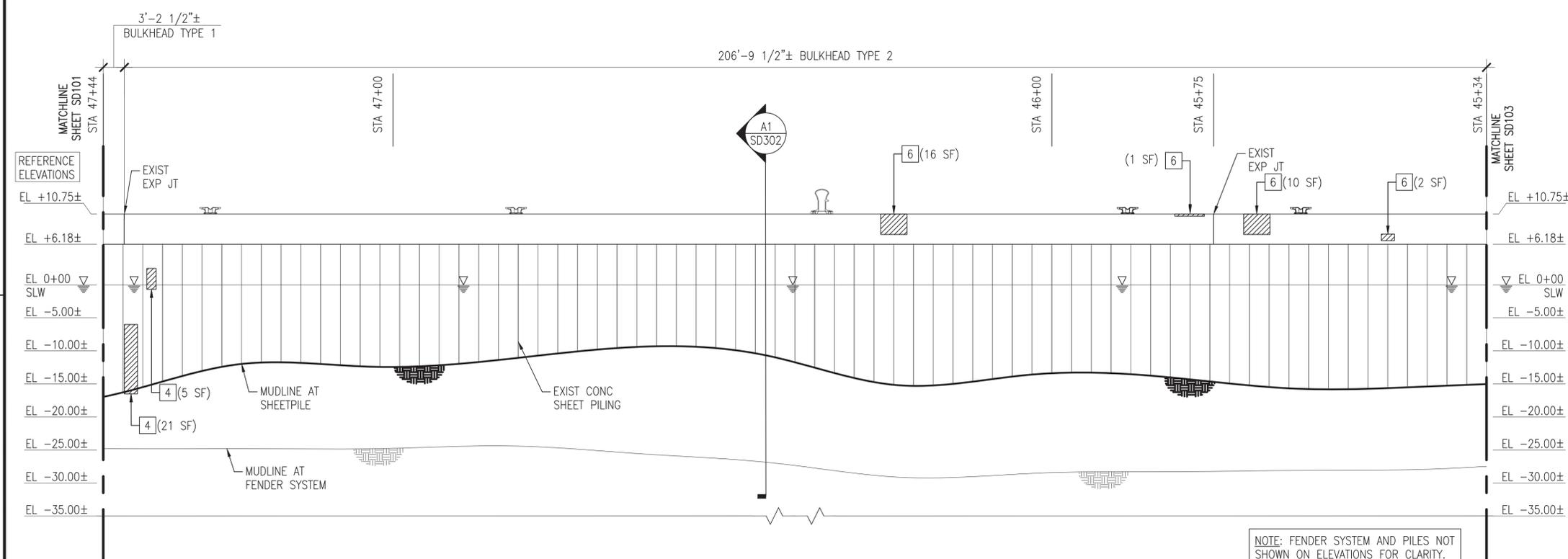


| | |
|---|-----------------------|
| APPROVED | DATE |
| FOR COMMANDER NAVFAC | DATE |
| ACTIVITY | DESCRIPTION |
| DAVE SEARS | 7-12-16 |
| SATISFACTORY TO DATE | 6/17/2016 |
| DES | ELT |
| DRAW | KAD |
| CHK | CLT |
| CLT | |
| DESIGN MANAGER | EDDY THEISZ |
| BRANCH MANAGER | CR |
| CHIEF ENGINEER | J. HASTE, P.E. |
| FIRE PROTECTION | |
| NAVAL FACILITIES ENGINEERING COMMAND | NORFOLK, VIRGINIA |
| NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC | NORFOLK NAVAL STATION |
| CEP-175 AND Z-308 BULKHEAD REPAIR | |
| STRUCTURAL PLAN & ELEV (1 OF 21) - DEMO | |
| SCALE: | AS NOTED |
| EPROJCT NO. | 1370817 |
| CONSTR. CONTR. NO. | N/A |
| NAFAC DRAWING NO. | 12,729,702 |
| SHEET | 47 OF 158 |
| SD101 | |
| DRAWFORM REVISION: | 10 MARCH 2009 |

FILE NAME: P:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-1752-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD102_STRUCTURAL_PLAN & ELEV (2 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:40pm USER: kimerly.abasz



C1 PLAN - Z-308 BULKHEAD (2 OF 7)
SCALE: 1" = 10'



A1 ELEVATION
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- BULKHEAD REPAIR TYPES AND ESTIMATED QUANTITIES ARE IDENTIFIED ON THE PLANS AND ELEVATIONS AS FOLLOWS. REFER TO SHEETS SD502, SD503, AND SD504 FOR THE REPAIR DETAILS.



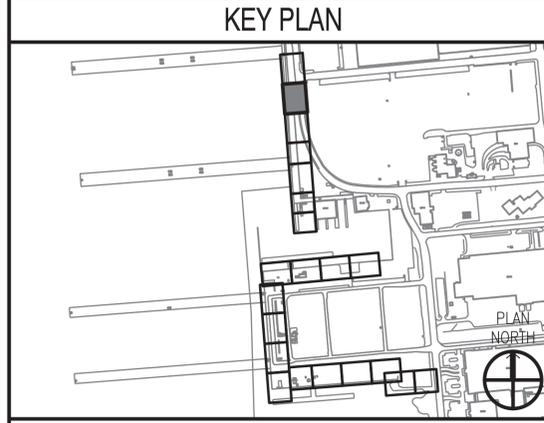
TABULATED DEMOLITION / SALVAGE QUANTITIES (THIS SHEET)

| SYMBOL | ITEM | QUANTITY | UNIT |
|--------|------------------------------------|----------|------|
| ○ | SALVAGE COMPOSITE PILE | 20 | EA |
| ⊗ | DEMOLISH "MISSING" COMPOSITE PILE | - | EA |
| ⊖ | DEMOLISH STEEL CHOCK W/SPACERS | 98 | LF |
| ⊗ | DEMOLISH RUBBER SECTIONS W/SPACERS | 14 | EA |
| ⊗ | DEMOLISH STEEL WELDMENTS | 7 | EA |
| ⊗ | DEMOLISH "MISSING" STEEL WELDMENTS | 3 | EA |
| ⊗ | DEMOLISH 42" CLEAT | 2 | EA |

TABULATED "UNIT PRICED" REPAIR QUANTITIES (THIS SHEET)

| REPAIR TYPE | ITEM | QUANTITY | UNIT |
|-------------|---|----------|------|
| 1 | PLATFORM SPALL REPAIR - BOTTOM CORNER | - | SF |
| 2 | PLATFORM SPALL REPAIR - UPPER CORNER | - | SF |
| 3 | CRACK REPAIR | - | SF |
| 4 | SHEET PILE & UNDERWATER SPALL REPAIR | 26 | SF |
| 5 | REINFORCING REPAIR | - | LF |
| 6 | PILE CAP SPALL REPAIR - CORNER & FASCIA | 29 | SF |
| 7 | PILE CAP SOFFIT REPAIR - UNDERNEATH | 13 | SF |
| 8 | PILE CAP REPAIR - TOP | 20 | SF |
| 9 | CONCRETE DECK REPAIR - TOP | - | SF |
| 10 | CURB REPLACEMENT | - | LF |
| 11 | CURB REPAIR | - | SF |
| 12 | CLEAT REPLACEMENT | 2 | EA |
| 13 | EXPANSION JOINT REPAIR | - | LF |

NOTE: ALL QUANTITIES (BOTH TABLES) ARE APPROXIMATE AND REPRESENT THE OVERALL EXTENT OF WORK REQUIRED AT THAT LOCATION.

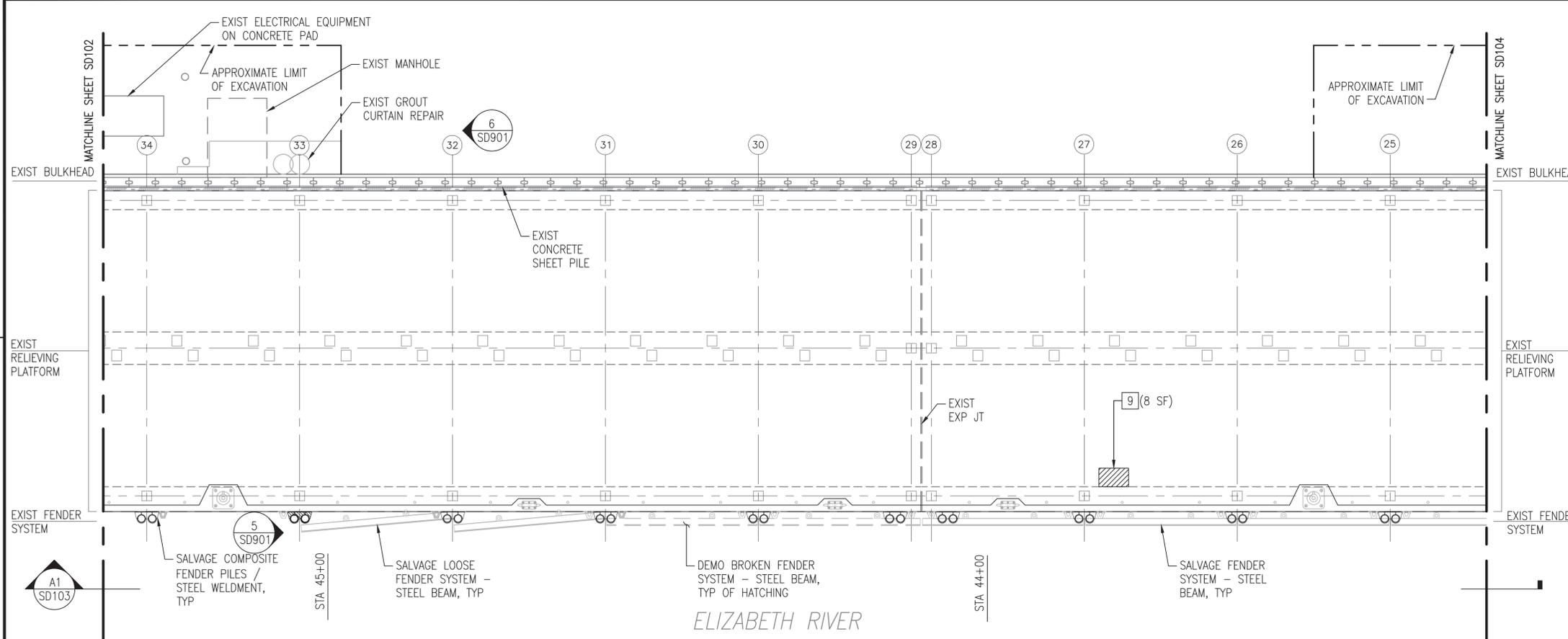


GRAPHIC SCALE

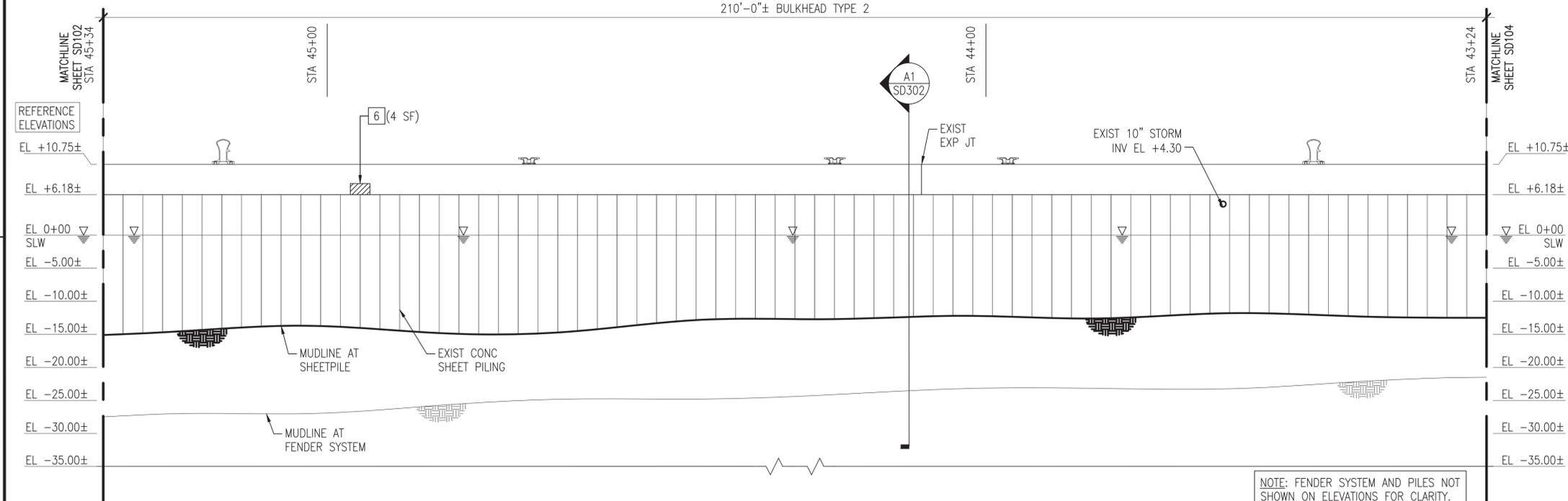


| | |
|----------------------------------|---|
| APPROVED | DATE |
| FOR COMMANDER NAVFAC | DATE |
| ACTIVITY | DATE |
| NAVFAC | DESCRIPTION |
| SEAL | DATE |
| A/E INFO | DATE |
| DAVE SEARS | 6/17/2016 |
| SATISFACTORY TO DATE | 6/17/2016 |
| DESIGNER | ELT |
| DRAWN | KAD |
| CHECKED | CHK |
| CLERK | CLT |
| DESIGN MANAGER | EDDY THEISZ |
| BRANCH MANAGER | CR |
| CHIEF ENGINEER | J. HASTE, P.E. |
| FIRE PROTECTION | |
| NAVFAC | NORFOLK, VIRGINIA |
| NAVFAC | NORFOLK NAVAL STATION |
| NAVFAC | CEP-175 AND Z-308 BULKHEAD REPAIR |
| NAVFAC | STRUCTURAL PLAN & ELEV (2 OF 21) - DEMO |
| SCALE: | AS NOTED |
| PROJECT NO. | 1370817 |
| CONSTR. CONTR. NO. | N/A |
| NAVFAC DRAWING NO. | 12,729,703 |
| SHEET | 48 OF 158 |
| SD102 | |
| DRAWFORM REVISION: 10 MARCH 2009 | |

FILE NAME: P:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD103_STRUCTURAL_PLAN & ELEV (3 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:40pm USER: kimerly.a.basz



C1 PLAN - Z-308 BULKHEAD (3 OF 7)
SCALE: 1" = 10'



A1 ELEVATION
SCALE: 1" = 10'

GENERAL SHEET NOTES @ Z-308

- DEMOLISH Z-308 BULKHEAD COMPOSITE FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHOCKS, WALES, BLOCKING, WELDMENTS, RUBBER COMPONENTS, CHAIN, AND SPACERS.
- FULLY EXTRACT AND SALVAGE ALL IDENTIFIED COMPOSITE PILES.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
- ELEVATIONS SHOWN ON THE SD SERIES DRAWINGS ARE NOTED AS REFERENCE ELEVATIONS, AND CORRESPOND TO THE PROVIDED AS-BUILT DRAWINGS FOR THE BULKHEAD, WITH THE TOP OF CURBING ELEVATION AT +11.0 FEET ABOVE MLW. THE CONTRACTOR SHALL SET UP TEMPORARY BENCHMARKS AND COORDINATE REAL TIME ELEVATIONS WITH THE CIVIL DRAWINGS AND DATUM PROVIDED ON G-002.
- BULKHEAD REPAIR TYPES AND ESTIMATED QUANTITIES ARE IDENTIFIED ON THE PLANS AND ELEVATIONS AS FOLLOWS. REFER TO SHEETS SD502, SD503, AND SD504 FOR THE REPAIR DETAILS.



TABULATED DEMOLITION / SALVAGE QUANTITIES (THIS SHEET)

| SYMBOL | ITEM | QUANTITY | UNIT |
|--------|------------------------------------|----------|------|
| ○ | SALVAGE COMPOSITE PILE | 20 | EA |
| ⊗ | DEMOLISH "MISSING" COMPOSITE PILE | - | EA |
| ⊖ | DEMOLISH STEEL CHOCK W/SPACERS | 134 | LF |
| ⊗ | DEMOLISH RUBBER SECTIONS W/SPACERS | 15 | EA |
| ⊗ | DEMOLISH STEEL WELDMENTS | 9 | EA |
| ⊗ | DEMOLISH "MISSING" STEEL WELDMENTS | 1 | EA |
| ⊖ | DEMOLISH 42" CLEAT | - | EA |

TABULATED "UNIT PRICED" REPAIR QUANTITIES (THIS SHEET)

| REPAIR TYPE | ITEM | QUANTITY | UNIT |
|-------------|---|----------|------|
| 1 | PLATFORM SPALL REPAIR - BOTTOM CORNER | - | SF |
| 2 | PLATFORM SPALL REPAIR - UPPER CORNER | - | SF |
| 3 | CRACK REPAIR | - | SF |
| 4 | SHEET PILE & UNDERWATER SPALL REPAIR | - | SF |
| 5 | REINFORCING REPAIR | - | LF |
| 6 | PILE CAP SPALL REPAIR - CORNER & FASCIA | 4 | SF |
| 7 | PILE CAP SOFFIT REPAIR - UNDERNEATH | - | SF |
| 8 | PILE CAP REPAIR - TOP | - | SF |
| 9 | CONCRETE DECK REPAIR - TOP | 8 | SF |
| 10 | CURB REPLACEMENT | - | LF |
| 11 | CURB REPAIR | - | SF |
| 12 | CLEAT REPLACEMENT | - | EA |
| 13 | EXPANSION JOINT REPAIR | - | LF |

NOTE: ALL QUANTITIES (BOTH TABLES) ARE APPROXIMATE AND REPRESENT THE OVERALL EXTENT OF WORK REQUIRED AT THAT LOCATION.

KEY PLAN

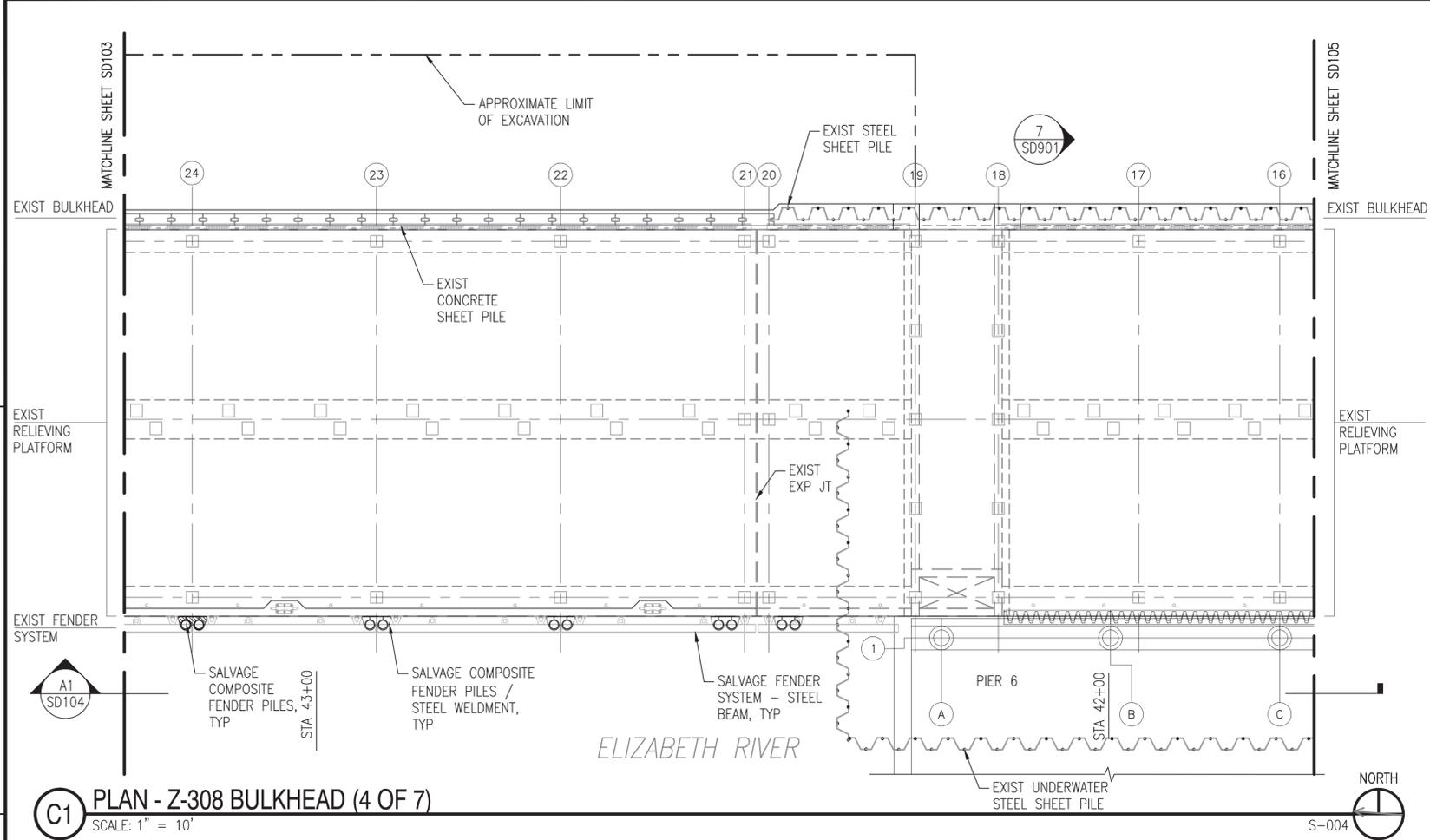


GRAPHIC SCALE

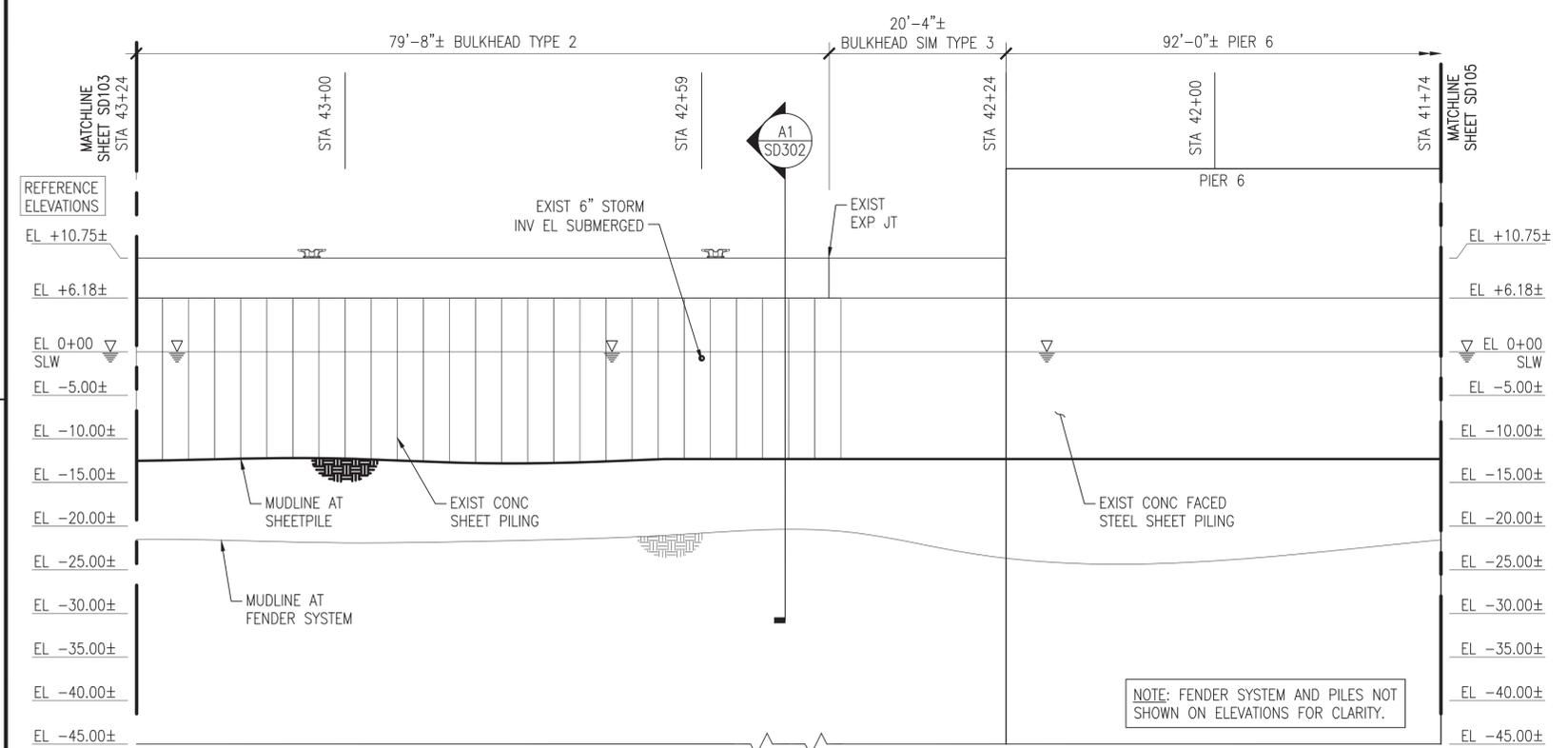


| | |
|---|----------------|
| APPROVED | DATE |
| FOR COMMANDER NAVFAC | 7-12-16 |
| ACTIVITY | |
| DAVE SEARS | |
| SATISFACTORY TO DATE | 6/17/2016 |
| DES | ELT |
| DRW | KAD |
| CHK | CLT |
| DESIGN MANAGER | EDDY THEISZ |
| BRANCH MANAGER | CR |
| CHIEF ENGINEER | J. HASTE, P.E. |
| FIRE PROTECTION | |
| NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC NORFOLK NAVAL STATION NORFOLK, VIRGINIA | |
| CEP-175 AND Z-308 BULKHEAD REPAIR STRUCTURAL PLAN & ELEV (3 OF 21) - DEMO | |
| SCALE: | AS NOTED |
| PROJECT NO. | 1370817 |
| CONSTR. CONTR. NO. | N/A |
| NAFAC DRAWING NO. | 12,729,704 |
| SHEET | 49 OF 158 |
| SD103 | |
| DRAWFORM REVISION: 10 MARCH 2009 | |

FILE NAME: F:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\Sheet\1370817_SD104_STRUCTURAL PLAN & ELEV (4 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:40pm USER: kimerly.abasz



C1 PLAN - Z-308 BULKHEAD (4 OF 7)
SCALE: 1" = 10'



A1 ELEVATION
SCALE: 1" = 10'

GENERAL SHEET NOTES @ Z-308

- DEMOLISH Z-308 BULKHEAD COMPOSITE FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHOCKS, WALES, BLOCKING, WELDMENTS, RUBBER COMPONENTS, CHAIN, AND SPACERS.
- FULLY EXTRACT AND SALVAGE ALL IDENTIFIED COMPOSITE PILES.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
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- BULKHEAD REPAIR TYPES AND ESTIMATED QUANTITIES ARE IDENTIFIED ON THE PLANS AND ELEVATIONS AS FOLLOWS. REFER TO SHEETS SD502, SD503, AND SD504 FOR THE REPAIR DETAILS.



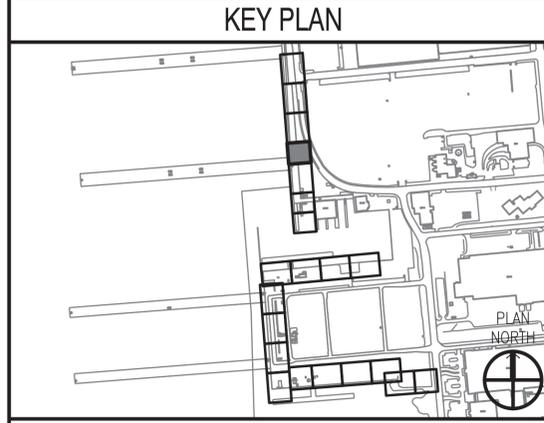
TABULATED DEMOLITION / SALVAGE QUANTITIES (THIS SHEET)

| SYMBOL | ITEM | QUANTITY | UNIT |
|--------|------------------------------------|----------|------|
| ○ | SALVAGE COMPOSITE PILE | 10 | EA |
| ⊗ | DEMOLISH "MISSING" COMPOSITE PILE | - | EA |
| ⊕ | DEMOLISH STEEL CHOCK W/SPACERS | 100 | LF |
| ⊖ | DEMOLISH RUBBER SECTIONS W/SPACERS | 10 | EA |
| ⊗ | DEMOLISH STEEL WELDMENTS | 4 | EA |
| ⊕ | DEMOLISH "MISSING" STEEL WELDMENTS | 1 | EA |
| ⊖ | DEMOLISH 42" CLEAT | - | EA |

TABULATED "UNIT PRICED" REPAIR QUANTITIES (THIS SHEET)

| REPAIR TYPE | ITEM | QUANTITY | UNIT |
|-------------|---|----------|------|
| 1 | PLATFORM SPALL REPAIR - BOTTOM CORNER | - | SF |
| 2 | PLATFORM SPALL REPAIR - UPPER CORNER | - | SF |
| 3 | CRACK REPAIR | - | SF |
| 4 | SHEET PILE & UNDERWATER SPALL REPAIR | - | SF |
| 5 | REINFORCING REPAIR | - | LF |
| 6 | PILE CAP SPALL REPAIR - CORNER & FASCIA | - | SF |
| 7 | PILE CAP SOFFIT REPAIR - UNDERNEATH | - | SF |
| 8 | PILE CAP REPAIR - TOP | - | SF |
| 9 | CONCRETE DECK REPAIR - TOP | - | SF |
| 10 | CURB REPLACEMENT | - | LF |
| 11 | CURB REPAIR | - | SF |
| 12 | CLEAT REPLACEMENT | - | EA |
| 13 | EXPANSION JOINT REPAIR | - | LF |

NOTE: ALL QUANTITIES (BOTH TABLES) ARE APPROXIMATE AND REPRESENT THE OVERALL EXTENT OF WORK REQUIRED AT THAT LOCATION.

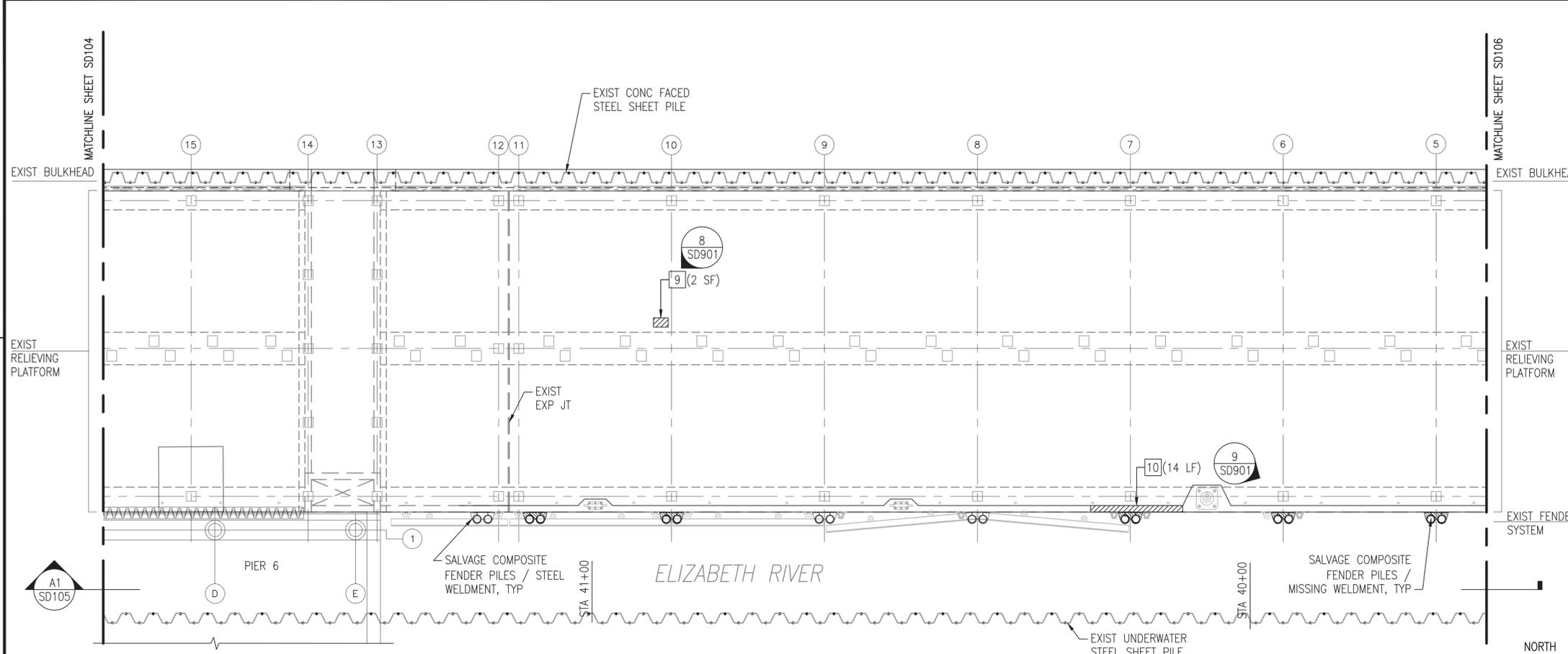


GRAPHIC SCALE

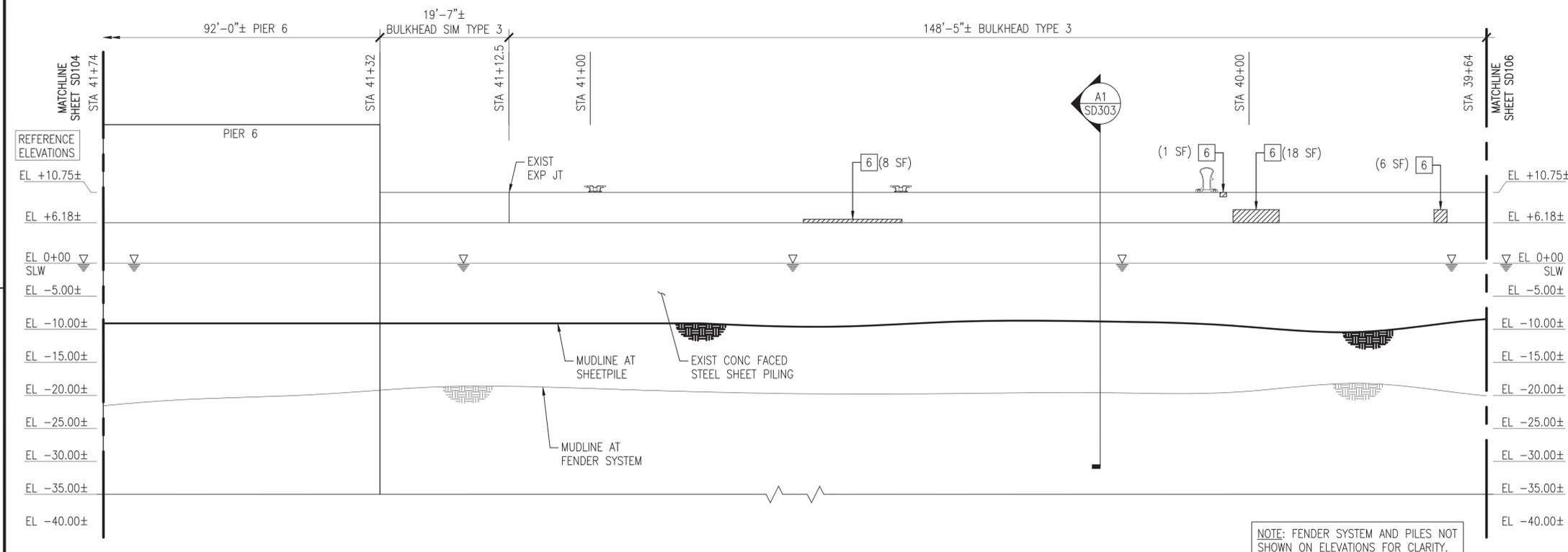


| | |
|---|----------------|
| APPROVED | DATE |
| FOR COMMANDER NAVFAC | 7-12-16 |
| ACTIVITY | |
| DAVE SEARS | |
| SATISFACTORY TO DATE | 6/17/2016 |
| DES | ELT |
| DRW | KAD |
| CHK | CLT |
| DESIGN MANAGER | EDDY THEISZ |
| BRANCH MANAGER | CR |
| CHIEF ENGINEER | J. HASTE, P.E. |
| FIRE PROTECTION | |
| NAVAL FACILITIES ENGINEERING COMMAND | |
| NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC | |
| NORFOLK NAVAL STATION | |
| NORFOLK, VIRGINIA | |
| DEPARTMENT OF THE NAVY | |
| HAMPTON ROADS IPT - FMD NORFOLK | |
| NORFOLK NAVAL STATION | |
| CEP-175 AND Z-308 BULKHEAD REPAIR | |
| STRUCTURAL PLAN & ELEV (4 OF 21) - DEMO | |
| SCALE: | AS NOTED |
| PROJECT NO. | 1370817 |
| CONSTR. CONTR. NO. | N/A |
| NAVFAC DRAWING NO. | 12,729,705 |
| SHEET | 50 OF 158 |
| SD104 | |
| DRAWFORM REVISION: 10 MARCH 2009 | |

FILE NAME: P:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD105_STRUCTURAL_PLAN & ELEV (5 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:40pm USER: kimerly.abasz



C1 PLAN - Z-308 BULKHEAD (5 OF 7)
SCALE: 1" = 10'



A1 ELEVATION
SCALE: 1" = 10'

GENERAL SHEET NOTES @ Z-308

- DEMOLISH Z-308 BULKHEAD COMPOSITE FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHOCKS, WALES, BLOCKING, WELDMENTS, RUBBER COMPONENTS, CHAIN, AND SPACERS.
- FULLY EXTRACT AND SALVAGE ALL IDENTIFIED COMPOSITE PILES.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
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- BULKHEAD REPAIR TYPES AND ESTIMATED QUANTITIES ARE IDENTIFIED ON THE PLANS AND ELEVATIONS AS FOLLOWS. REFER TO SHEETS SD502, SD503, AND SD504 FOR THE REPAIR DETAILS.



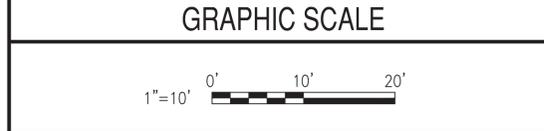
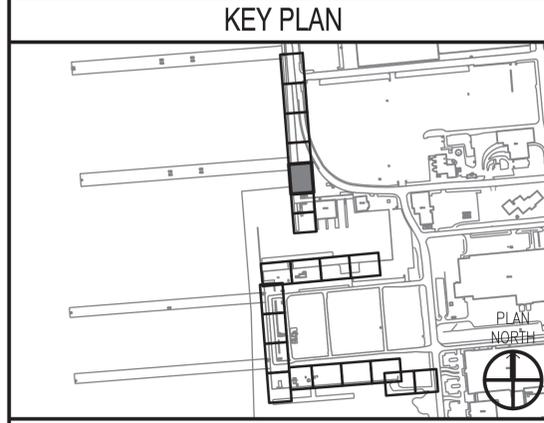
TABULATED DEMOLITION / SALVAGE QUANTITIES (THIS SHEET)

| SYMBOL | ITEM | QUANTITY | UNIT |
|--------|------------------------------------|----------|------|
| ○ | SALVAGE COMPOSITE PILE | 16 | EA |
| ⊗ | DEMOLISH "MISSING" COMPOSITE PILE | - | EA |
| □ | DEMOLISH STEEL CHOCK W/SPACERS | 68 | LF |
| ▭ | DEMOLISH RUBBER SECTIONS W/SPACERS | 12 | EA |
| ⊕ | DEMOLISH STEEL WELDMENTS | 3 | EA |
| ⊖ | DEMOLISH "MISSING" STEEL WELDMENTS | 5 | EA |
| ⊗ | DEMOLISH 42" CLEAT | - | EA |

TABULATED "UNIT PRICED" REPAIR QUANTITIES (THIS SHEET)

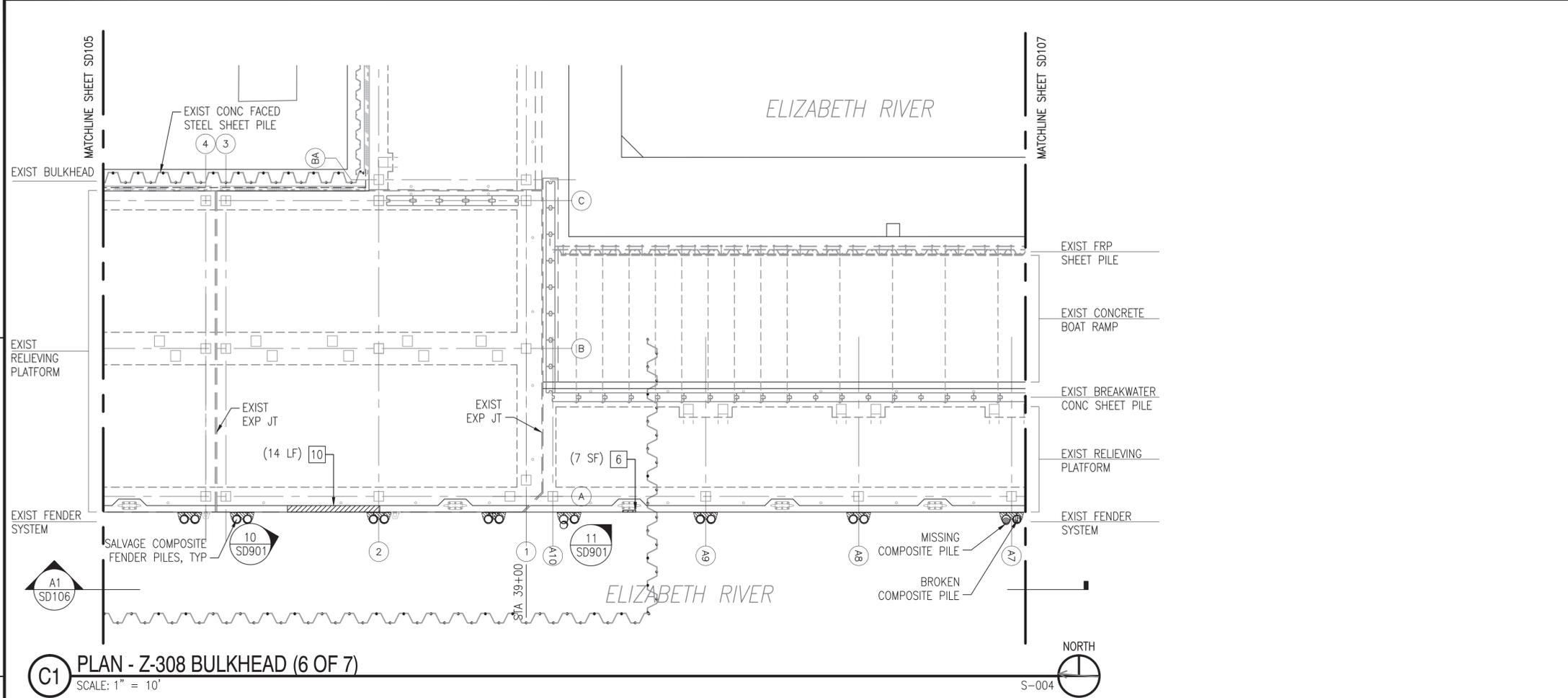
| REPAIR TYPE | ITEM | QUANTITY | UNIT |
|-------------|---|----------|------|
| 1 | PLATFORM SPALL REPAIR - BOTTOM CORNER | - | SF |
| 2 | PLATFORM SPALL REPAIR - UPPER CORNER | - | SF |
| 3 | CRACK REPAIR | - | SF |
| 4 | SHEET PILE & UNDERWATER SPALL REPAIR | - | SF |
| 5 | REINFORCING REPAIR | - | LF |
| 6 | PILE CAP SPALL REPAIR - CORNER & FASCIA | 33 | SF |
| 7 | PILE CAP SOFFIT REPAIR - UNDERNEATH | - | SF |
| 8 | PILE CAP REPAIR - TOP | - | SF |
| 9 | CONCRETE DECK REPAIR - TOP | 2 | SF |
| 10 | CURB REPLACEMENT | 14 | LF |
| 11 | CURB REPAIR | - | SF |
| 12 | CLEAT REPLACEMENT | - | EA |
| 13 | EXPANSION JOINT REPAIR | - | LF |

NOTE: ALL QUANTITIES (BOTH TABLES) ARE APPROXIMATE AND REPRESENT THE OVERALL EXTENT OF WORK REQUIRED AT THAT LOCATION.

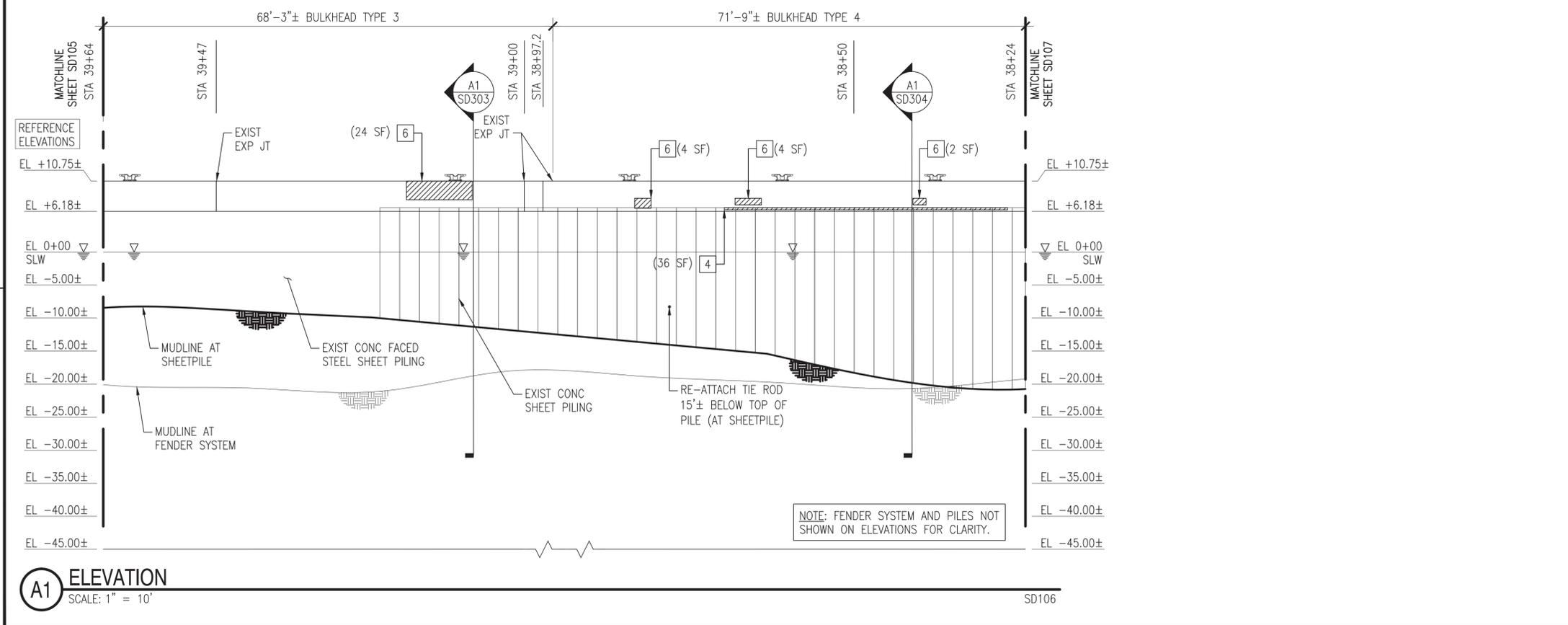


| | |
|---|-----------------------|
| APPROVED | DATE |
| FOR COMMANDER NAVFAC | DATE |
| ACTIVITY | DESCRIPTION |
| DAVE SEARS | 7-12-16 |
| SATISFACTORY TO DATE | 6/17/2016 |
| DESIGNER | ELT |
| DRAWN | KAD |
| CHECKED | CLT |
| DESIGN MANAGER | EDDY THEISZ |
| BRANCH MANAGER | CR |
| CHIEF ENGINEER | J. HASTE, P.E. |
| FIRE PROTECTION | |
| NAVAL FACILITIES ENGINEERING COMMAND | NORFOLK NAVAL STATION |
| NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC | NORFOLK, VIRGINIA |
| CEP-175 AND Z-308 BULKHEAD REPAIR | |
| STRUCTURAL PLAN & ELEV (5 OF 21) - DEMO | |
| SCALE: | AS NOTED |
| PROJECT NO. | 1370817 |
| CONSTR. CONTR. NO. | N/A |
| NAVFAC DRAWING NO. | 12,729,706 |
| SHEET | 51 OF 158 |
| SD105 | |
| DRAWING REVISION: 10 MARCH 2009 | |

FILE NAME: P:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD106_STRUCTURAL_PLAN & ELEV (6 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:40pm USER: kimerly.abasz



C1 PLAN - Z-308 BULKHEAD (6 OF 7)
SCALE: 1" = 10'



A1 ELEVATION
SCALE: 1" = 10'

GENERAL SHEET NOTES @ Z-308

- DEMOLISH Z-308 BULKHEAD COMPOSITE FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHOCKS, WALES, BLOCKING, WELDMENTS, RUBBER COMPONENTS, CHAIN, AND SPACERS.
- FULLY EXTRACT AND SALVAGE ALL IDENTIFIED COMPOSITE PILES.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
- ELEVATIONS SHOWN ON THE SD SERIES DRAWINGS ARE NOTED AS REFERENCE ELEVATIONS, AND CORRESPOND TO THE PROVIDED AS-BUILT DRAWINGS FOR THE BULKHEAD, WITH THE TOP OF CURBING ELEVATION AT +11.0 FEET ABOVE MLW. THE CONTRACTOR SHALL SET UP TEMPORARY BENCHMARKS AND COORDINATE REAL TIME ELEVATIONS WITH THE CIVIL DRAWINGS AND DATUM PROVIDED ON G-002.
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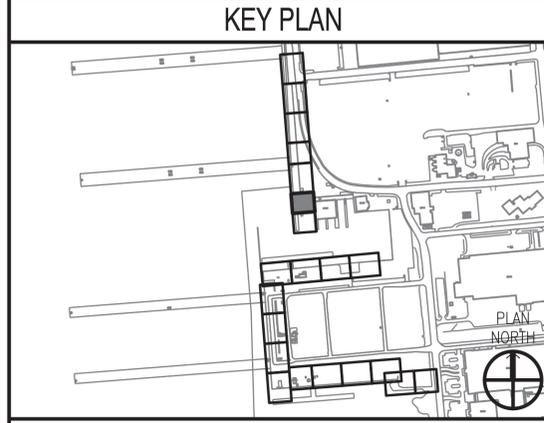
TABULATED DEMOLITION / SALVAGE QUANTITIES (THIS SHEET)

| SYMBOL | ITEM | QUANTITY | UNIT |
|--------|------------------------------------|----------|------|
| ○ | SALVAGE COMPOSITE PILE | 15 | EA |
| ⊗ | DEMOLISH "MISSING" COMPOSITE PILE | 1 | EA |
| ⊖ | DEMOLISH STEEL CHOCK W/SPACERS | - | LF |
| ⊗ | DEMOLISH RUBBER SECTIONS W/SPACERS | 2 | EA |
| ⊖ | DEMOLISH STEEL WELDMENTS | - | EA |
| ⊗ | DEMOLISH "MISSING" STEEL WELDMENTS | 8 | EA |
| ⊖ | DEMOLISH 42" CLEAT | - | EA |

TABULATED "UNIT PRICED" REPAIR QUANTITIES (THIS SHEET)

| REPAIR TYPE | ITEM | QUANTITY | UNIT |
|-------------|---|----------|------|
| 1 | PLATFORM SPALL REPAIR - BOTTOM CORNER | - | SF |
| 2 | PLATFORM SPALL REPAIR - UPPER CORNER | - | SF |
| 3 | CRACK REPAIR | - | SF |
| 4 | SHEET PILE & UNDERWATER SPALL REPAIR | 36 | SF |
| 5 | REINFORCING REPAIR | - | LF |
| 6 | PILE CAP SPALL REPAIR - CORNER & FASCIA | 41 | SF |
| 7 | PILE CAP SOFFIT REPAIR - UNDERNEATH | - | SF |
| 8 | PILE CAP REPAIR - TOP | - | SF |
| 9 | CONCRETE DECK REPAIR - TOP | - | SF |
| 10 | CURB REPLACEMENT | 14 | LF |
| 11 | CURB REPAIR | - | SF |
| 12 | CLEAT REPLACEMENT | - | EA |
| 13 | EXPANSION JOINT REPAIR | - | LF |

NOTE: ALL QUANTITIES (BOTH TABLES) ARE APPROXIMATE AND REPRESENT THE OVERALL EXTENT OF WORK REQUIRED AT THAT LOCATION.

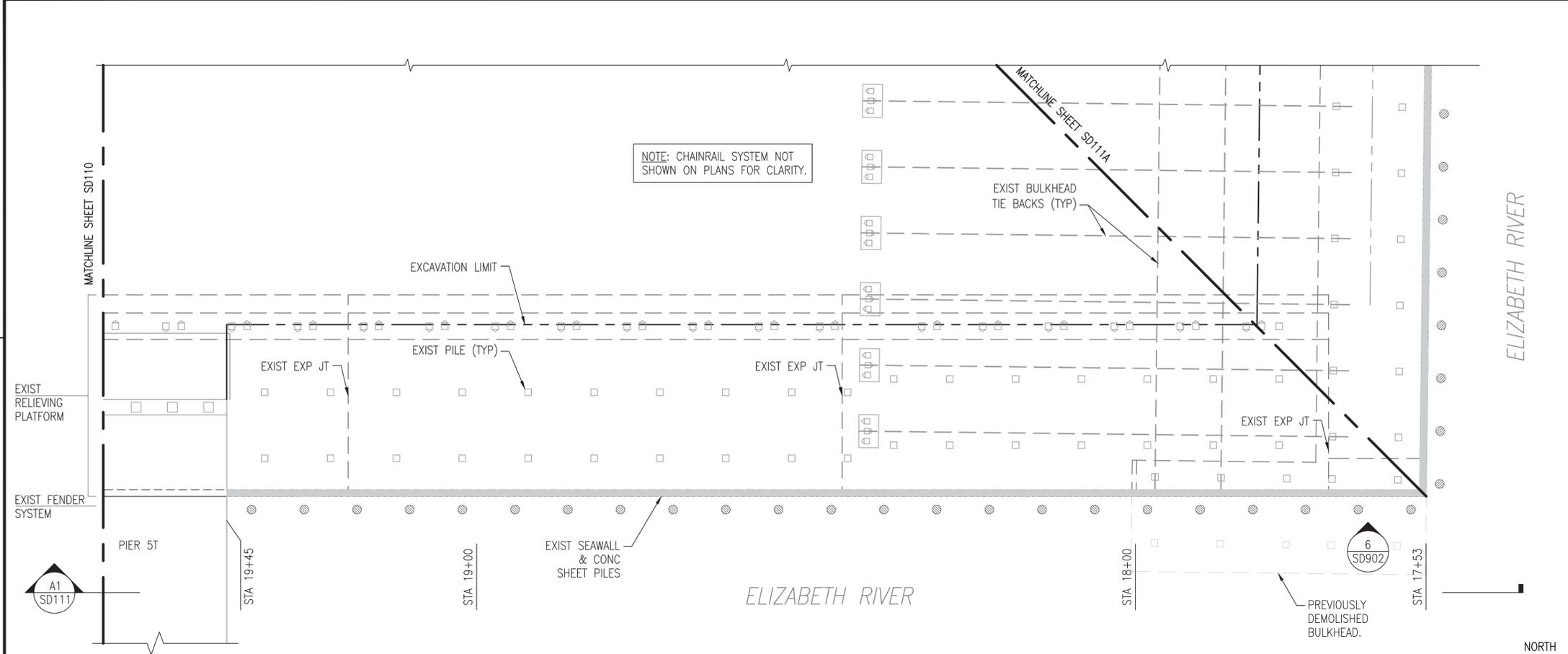


GRAPHIC SCALE

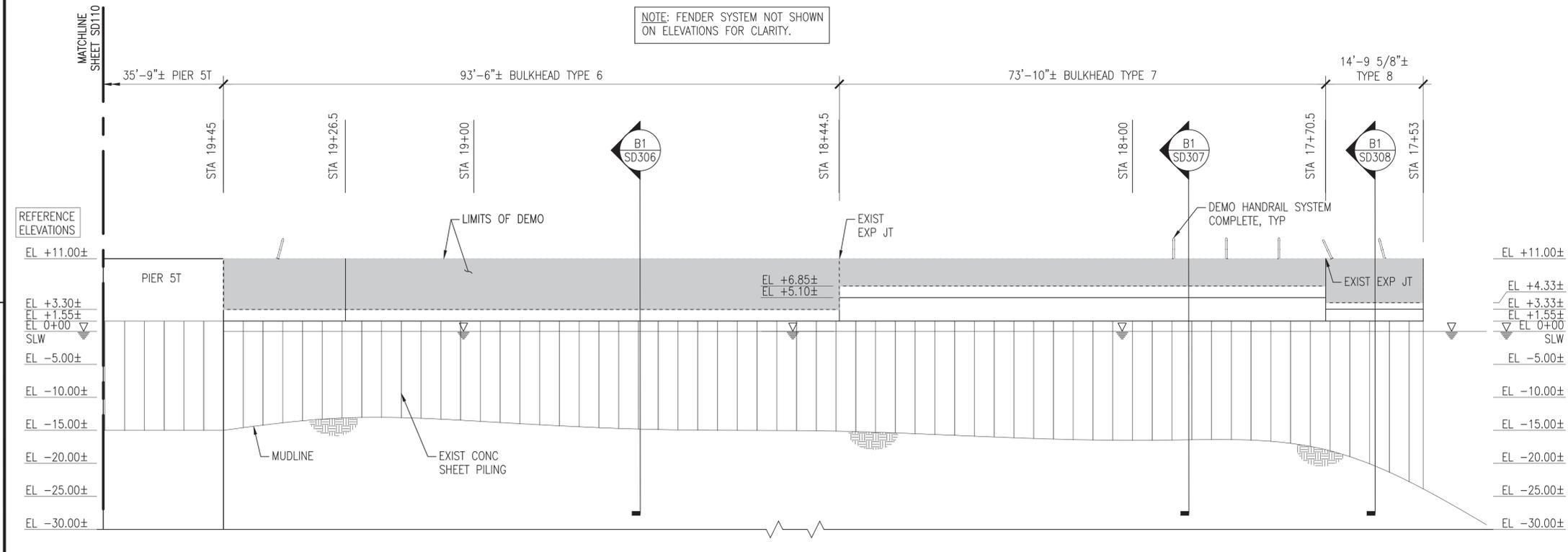


| | |
|---|-----------------------|
| APPROVED | DATE |
| FOR COMMANDER NAVFAC | DATE |
| ACTIVITY | DATE |
| DAVE SEARS | DATE |
| SATISFACTORY TO DATE | 6/17/2016 |
| DES | ELT |
| DRW | KAD |
| CHK | CLT |
| DESIGN MANAGER | EDDY THEISZ |
| BRANCH MANAGER | CR |
| CHIEF ENGINEER | J. HASTE, P.E. |
| FIRE PROTECTION | |
| NAVAL FACILITIES ENGINEERING COMMAND | NORFOLK, VIRGINIA |
| NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC | NORFOLK NAVAL STATION |
| CEP-175 AND Z-308 BULKHEAD REPAIR | |
| STRUCTURAL PLAN & ELEV (6 OF 21) - DEMO | |
| SCALE: | AS NOTED |
| PROJECT NO. | 1370817 |
| CONSTR. CONTR. NO. | N/A |
| NAFAC DRAWING NO. | 12,729,707 |
| SHEET | 52 OF 158 |
| SD106 | |
| DRAWING REVISION: 10 MARCH 2009 | |

FILE NAME: P:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD110_SERIES.dwg LAYOUT NAME: SD111 STRUCTURAL PLAN & ELEV (11 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:41pm USER: kimberly.cadwaz2



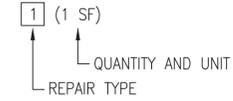
C1 PLAN - CEP-175 BULKHEAD - NORTH FACE (4 OF 4)
SCALE: 1" = 10'



A1 ELEVATION
SCALE: 1" = 10'

GENERAL SHEET NOTES @ CEP-175

- DEMOLISH CEP-175 BULKHEAD TIMBER FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, PILES, CHOCKS, WALES, BLOCKING, AND SPACERS.
- DEMOLISH EXISTING HANDRAIL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHAIN, POSTS, ANCHORS, AND FOUNDATIONS.
- DEMOLISH EXISTING SEAWALL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, EXISTING CURBING, CLEATS, AND SEAWALL. **NOTE:** PRESERVE EXISTING TURNED-UP REBAR FROM THE RELIEVING PLATFORM FOR REUSE IN THE NEW SEAWALL.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
- ELEVATIONS SHOWN ON THE SD SERIES DRAWINGS ARE NOTED AS REFERENCE ELEVATIONS, AND CORRESPOND TO THE PROVIDED AS-BUILT DRAWINGS FOR THE BULKHEAD, WITH THE TOP OF CURBING ELEVATION AT +11.0 FEET ABOVE MLW. THE CONTRACTOR SHALL SET UP TEMPORARY BENCHMARKS AND COORDINATE REAL TIME ELEVATIONS WITH THE CIVIL DRAWINGS AND DATUM PROVIDED ON G-002.
- BULKHEAD REPAIR TYPES AND ESTIMATED QUANTITIES ARE IDENTIFIED ON THE PLANS AND ELEVATIONS AS FOLLOWS. REFER TO SHEETS SD502, SD503, AND SD504 FOR THE REPAIR DETAILS.



TABULATED DEMOLITION / SALVAGE QUANTITIES (THIS SHEET)

| SYMBOL | ITEM | QUANTITY | UNIT |
|--------|---------------------------------|----------|-------|
| | DEMOLISH 24" CLEAT | - | EA |
| | DEMOLISH TIMBER PILE | - | EA |
| | DEMOLISH "MISSING" TIMBER PILE | 23 | EA |
| | DEMOLISH TIMBER WALE W/BLOCKING | - | LF |
| | DEMOLISH TIMBER CHOCK W/SPACERS | - | LF |
| | DEMOLISH CHAIN / POSTS | 0/6 | LF/EA |

TABULATED "UNIT PRICED" REPAIR QUANTITIES (THIS SHEET)

| REPAIR TYPE | ITEM | QUANTITY | UNIT |
|-------------|---------------------------------------|----------|------|
| 1 | PLATFORM SPALL REPAIR - BOTTOM CORNER | - | SF |
| 2 | PLATFORM SPALL REPAIR - UPPER CORNER | - | SF |
| 4 | SHEET PILE & UNDERWATER SPALL REPAIR | - | SF |

NOTE: ALL QUANTITIES (BOTH TABLES) ARE APPROXIMATE AND REPRESENT THE OVERALL EXTENT OF WORK REQUIRED AT THAT LOCATION.

KEY PLAN

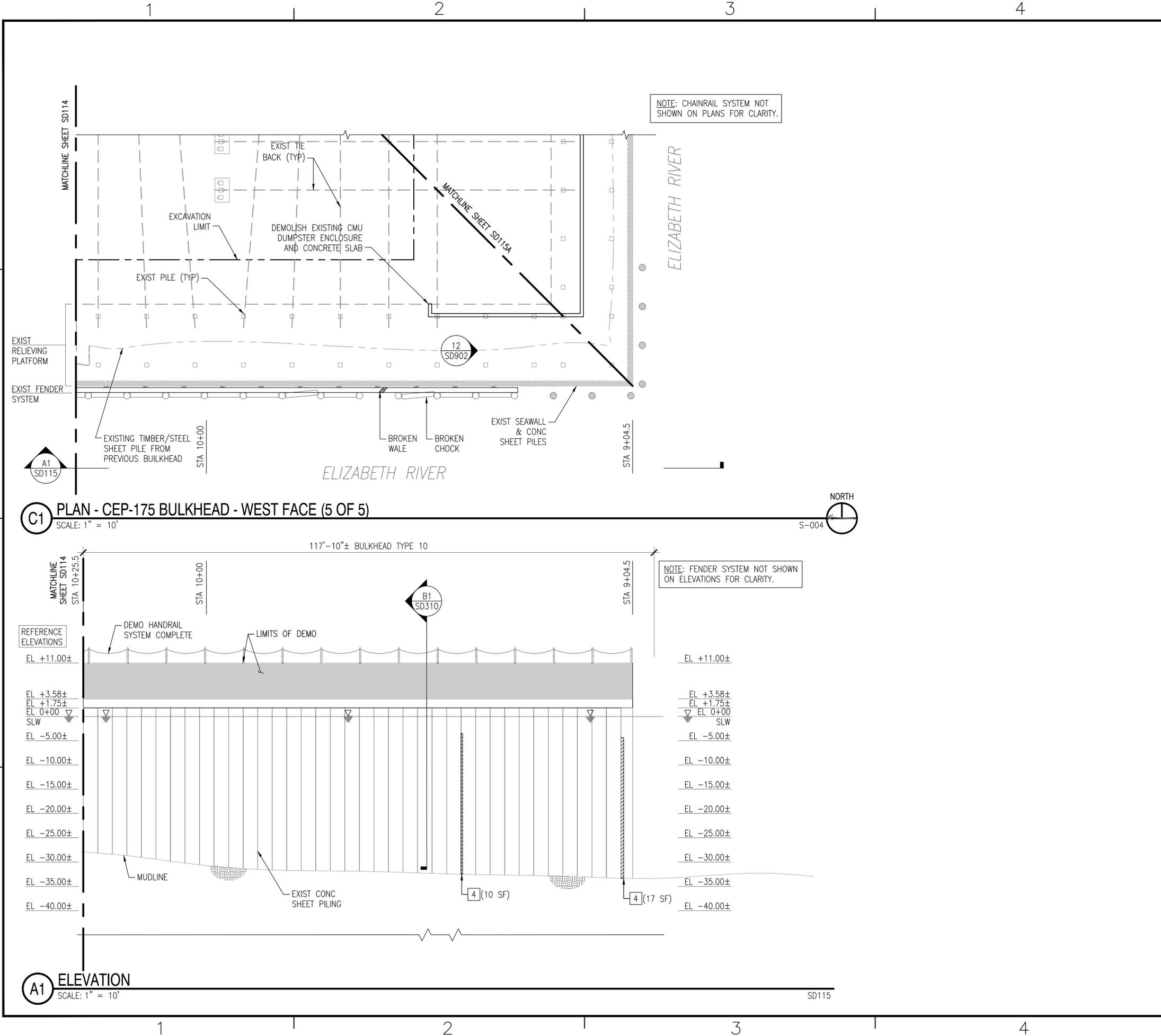


GRAPHIC SCALE



| | |
|---|-----------------------|
| APPROVED | DATE |
| FOR COMMANDER NAVFAC | 7-12-16 |
| ACTIVITY | |
| DAVE SEARS | |
| SATISFACTORY TO DATE | 6/17/2016 |
| DES | ELT |
| DRW | KAD |
| CHK | CLT |
| DESIGN MANAGER | EDDY THEISZ |
| BRANCH MANAGER | CR |
| CHIEF ENGINEER | J. HASTE, P.E. |
| FIRE PROTECTION | |
| NAVAL FACILITIES ENGINEERING COMMAND | NORFOLK NAVAL STATION |
| NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC | NORFOLK, VIRGINIA |
| CEP-175 AND Z-308 BULKHEAD REPAIR | |
| STRUCTURAL PLAN & ELEV (11 OF 21) - DEMO | |
| SCALE: | AS NOTED |
| PROJECT NO. | 1370817 |
| CONSTR. CONTR. NO. | N/A |
| NAFAC DRAWING NO. | 12,729,712 |
| SHEET | 57 OF 158 |
| SD111 | |
| DRAWFORM REVISION: 10 MARCH 2009 | |

FILE NAME: P:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD115_STRUCTUREAL PLAN & ELEV (15 OF 21) - DEMO PLOTTED Wednesday, July 13, 2016 - 10:00am USER: kimberly.adams2



GENERAL SHEET NOTES @ CEP-175

- DEMOLISH CEP-175 BULKHEAD TIMBER FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, PILES, CHOCKS, WALES, BLOCKING, AND SPACERS.
- DEMOLISH EXISTING HANDRAIL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHAIN, POSTS, ANCHORS, AND FOUNDATIONS.
- DEMOLISH EXISTING SEAWALL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, EXISTING CURBING, CLEATS, AND SEAWALL. **NOTE:** PRESERVE EXISTING TURNED-UP REBAR FROM THE RELIEVING PLATFORM FOR REUSE IN THE NEW SEAWALL.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
- ELEVATIONS SHOWN ON THE SD SERIES DRAWINGS ARE NOTED AS REFERENCE ELEVATIONS, AND CORRESPOND TO THE PROVIDED AS-BUILT DRAWINGS FOR THE BULKHEAD, WITH THE TOP OF CURBING ELEVATION AT +11.0 FEET ABOVE MLW. THE CONTRACTOR SHALL SET UP TEMPORARY BENCHMARKS AND COORDINATE REAL TIME ELEVATIONS WITH THE CIVIL DRAWINGS AND DATUM PROVIDED ON G-002.
- BULKHEAD REPAIR TYPES AND ESTIMATED QUANTITIES ARE IDENTIFIED ON THE PLANS AND ELEVATIONS AS FOLLOWS. REFER TO SHEETS SD502, SD503, AND SD504 FOR THE REPAIR DETAILS.

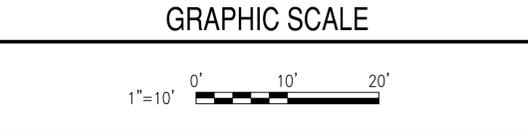
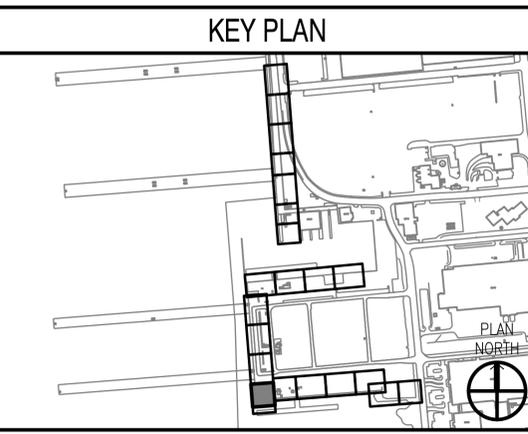
TABULATED DEMOLITION / SALVAGE QUANTITIES (THIS SHEET)

| SYMBOL | ITEM | QUANTITY | UNIT |
|--------|---------------------------------|----------|-------|
| | DEMOLISH 24" CLEAT | - | EA |
| | DEMOLISH TIMBER PILE | 12 | EA |
| | DEMOLISH "MISSING" TIMBER PILE | 3 | EA |
| | DEMOLISH TIMBER WALE W/BLOCKING | - | LF |
| | DEMOLISH TIMBER CHOCK W/SPACERS | 34 | LF |
| | DEMOLISH CHAIN / POSTS | 120/15 | LF/EA |

TABULATED "UNIT PRICED" REPAIR QUANTITIES (THIS SHEET)

| REPAIR TYPE | ITEM | QUANTITY | UNIT |
|-------------|--------------------------------------|----------|------|
| | SHEET PILE & UNDERWATER SPALL REPAIR | 27 | SF |

NOTE: ALL QUANTITIES (BOTH TABLES) ARE APPROXIMATE AND REPRESENT THE OVERALL EXTENT OF WORK REQUIRED AT THAT LOCATION.

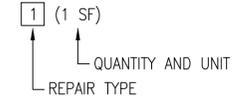


| | |
|--|--------------------------------|
| | APPROVED: _____ DATE: _____ |
| FOR COMMANDER NAVFAC ACTIVITY: _____ | |
| DAVID SEARS Satisfactory to Date: 6/17/2016 DES: ELT DRW: KAD CHK: CLT DESIGN MANAGER: EDDY THEISZ BRANCH MANAGER: _____ CHIEF ENGINEER: J. HASTE, P.E. FIRE PROTECTION: _____ | |
| DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC NORFOLK NAVAL STATION NORFOLK, VIRGINIA | |
| CEP-175 AND Z-308 BULKHEAD REPAIR STRUCTURAL PLAN & ELEV (15 OF 21) - DEMO | |
| SCALE: AS NOTED EPROJCT NO. 1370817 CONSTR. CONTR. NO. N/A NAVFAC DRAWING NO. 12,729,717 SHEET 62 OF 158 SD115 <small>DRAWING REVISION: 10 MARCH 2009</small> | |

FILE NAME: F:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD115A_STRUCTURAL_PLAN & ELEV (15A OF 21) - DEMO PLOTTED: Wednesday, July 13, 2016 - 10:00am USER: timberly.o.davisz

GENERAL SHEET NOTES @ CEP-175

- DEMOLISH CEP-175 BULKHEAD TIMBER FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, PILES, CHOCKS, WALES, BLOCKING, AND SPACERS.
- DEMOLISH EXISTING HANDRAIL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHAIN, POSTS, ANCHORS, AND FOUNDATIONS.
- DEMOLISH EXISTING SEAWALL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, EXISTING CURBING, CLEATS, AND SEAWALL. **NOTE:** PRESERVE EXISTING TURNED-UP REBAR FROM THE RELIEVING PLATFORM FOR REUSE IN THE NEW SEAWALL.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
- ELEVATIONS SHOWN ON THE SD SERIES DRAWINGS ARE NOTED AS REFERENCE ELEVATIONS, AND CORRESPOND TO THE PROVIDED AS-BUILT DRAWINGS FOR THE BULKHEAD, WITH THE TOP OF CURBING ELEVATION AT +11.0 FEET ABOVE MLW. THE CONTRACTOR SHALL SET UP TEMPORARY BENCHMARKS AND COORDINATE REAL TIME ELEVATIONS WITH THE CIVIL DRAWINGS AND DATUM PROVIDED ON G-002.
- BULKHEAD REPAIR TYPES AND ESTIMATED QUANTITIES ARE IDENTIFIED ON THE PLANS AND ELEVATIONS AS FOLLOWS. REFER TO SHEETS SD502, SD503, AND SD504 FOR THE REPAIR DETAILS.



TABULATED DEMOLITION / SALVAGE QUANTITIES (THIS SHEET)

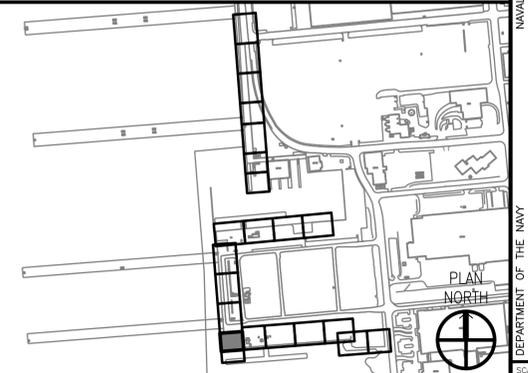
| SYMBOL | ITEM | QUANTITY | UNIT |
|--------|---------------------------------|----------|-------|
| | DEMOLISH 24" CLEAT | - | EA |
| | DEMOLISH TIMBER PILE | - | EA |
| | DEMOLISH "MISSING" TIMBER PILE | 4 | EA |
| | DEMOLISH TIMBER WALE W/BLOCKING | - | LF |
| | DEMOLISH TIMBER CHOCK W/SPACERS | - | LF |
| | DEMOLISH CHAIN / POSTS | - | LF/EA |

TABULATED "UNIT PRICED" REPAIR QUANTITIES (THIS SHEET)

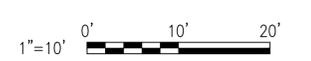
| REPAIR TYPE | ITEM | QUANTITY | UNIT |
|-------------|--------------------------------------|----------|------|
| | SHEET PILE & UNDERWATER SPALL REPAIR | 25 | SF |

NOTE: ALL QUANTITIES (BOTH TABLES) ARE APPROXIMATE AND REPRESENT THE OVERALL EXTENT OF WORK REQUIRED AT THAT LOCATION.

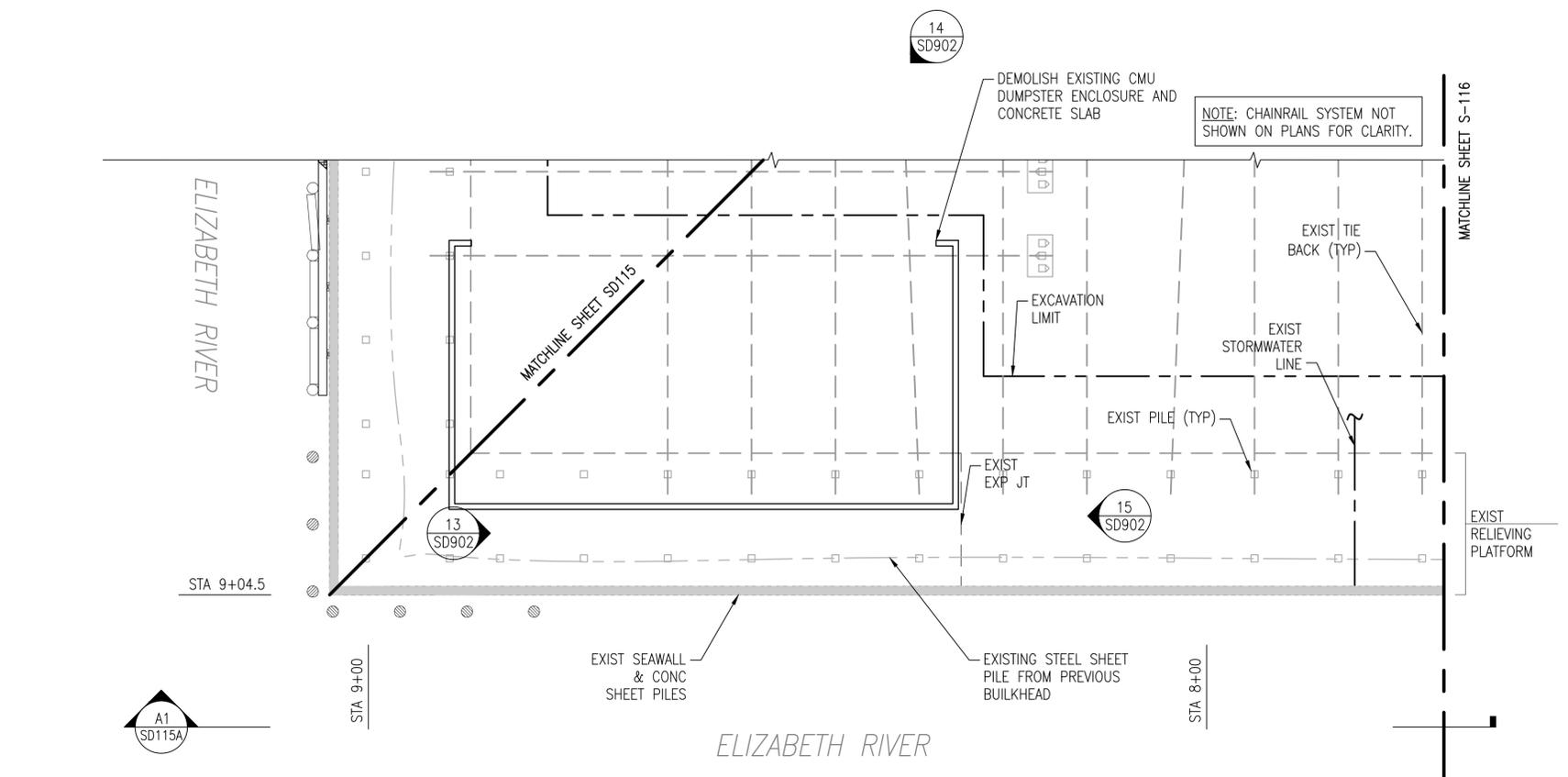
KEY PLAN



GRAPHIC SCALE

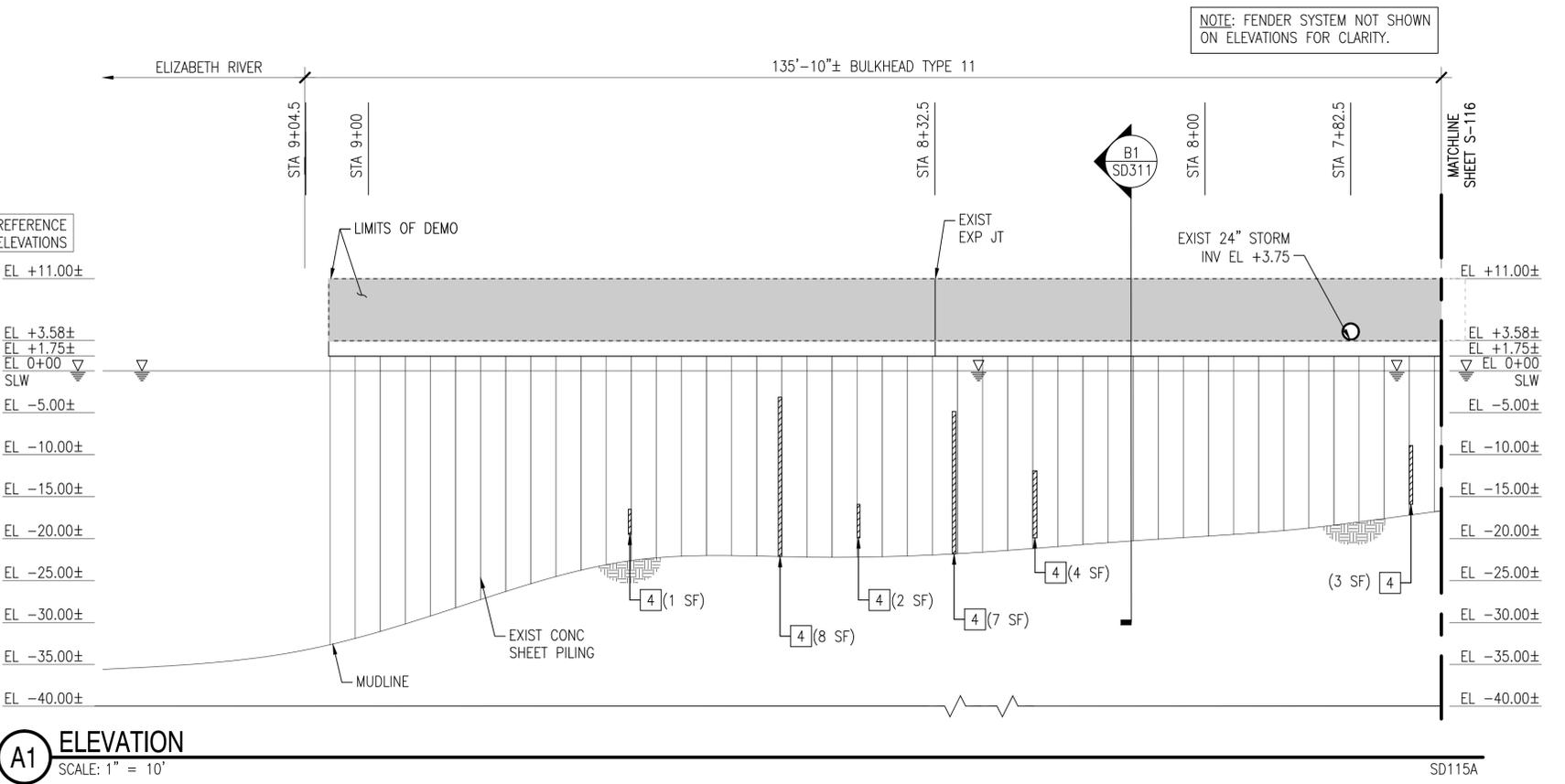


C1 PLAN - CEP-175 BULKHEAD - SOUTH FACE (1 OF 5)
SCALE: 1" = 10'



REFERENCE ELEVATIONS

| |
|------------|
| EL +11.00± |
| EL +3.58± |
| EL +1.75± |
| EL 0+00 ∇ |
| SLW |
| EL -5.00± |
| EL -10.00± |
| EL -15.00± |
| EL -20.00± |
| EL -25.00± |
| EL -30.00± |
| EL -35.00± |
| EL -40.00± |



A1 ELEVATION
SCALE: 1" = 10'

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|-------------|--|--|--|--|
| DATE | | | | |
| DESCRIPTION | | | | |
| DATE | | | | |
| DESCRIPTION | | | | |
| DATE | | | | |
| DESCRIPTION | | | | |
| DATE | | | | |
| DESCRIPTION | | | | |

APPROVED: _____

FOR COMMANDER NAVFAC

ACTIVITY: **DAVE SEARS**

SATISFACTORY TO DATE: **6/17/2016**

DES: **ELT** | DRW: **KAD** | CHK: **CLT**

DESIGN MANAGER: **EDDY THEISZ**

BRANCH MANAGER:

CHIEF ENGINEER: **J. HASTE, P.E.**

FIRE PROTECTION:

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA

CEP-175 AND Z-308 BULKHEAD REPAIR
STRUCTURAL PLAN & ELEV (15A OF 21) - DEMO

SCALE: **AS NOTED**

PROJECT NO.: **1370817**

CONSTR. CONTR. NO.: **N/A**

NAVFAC DRAWING NO.: **12,729,718**

SHEET **63** OF **158**

SD115A

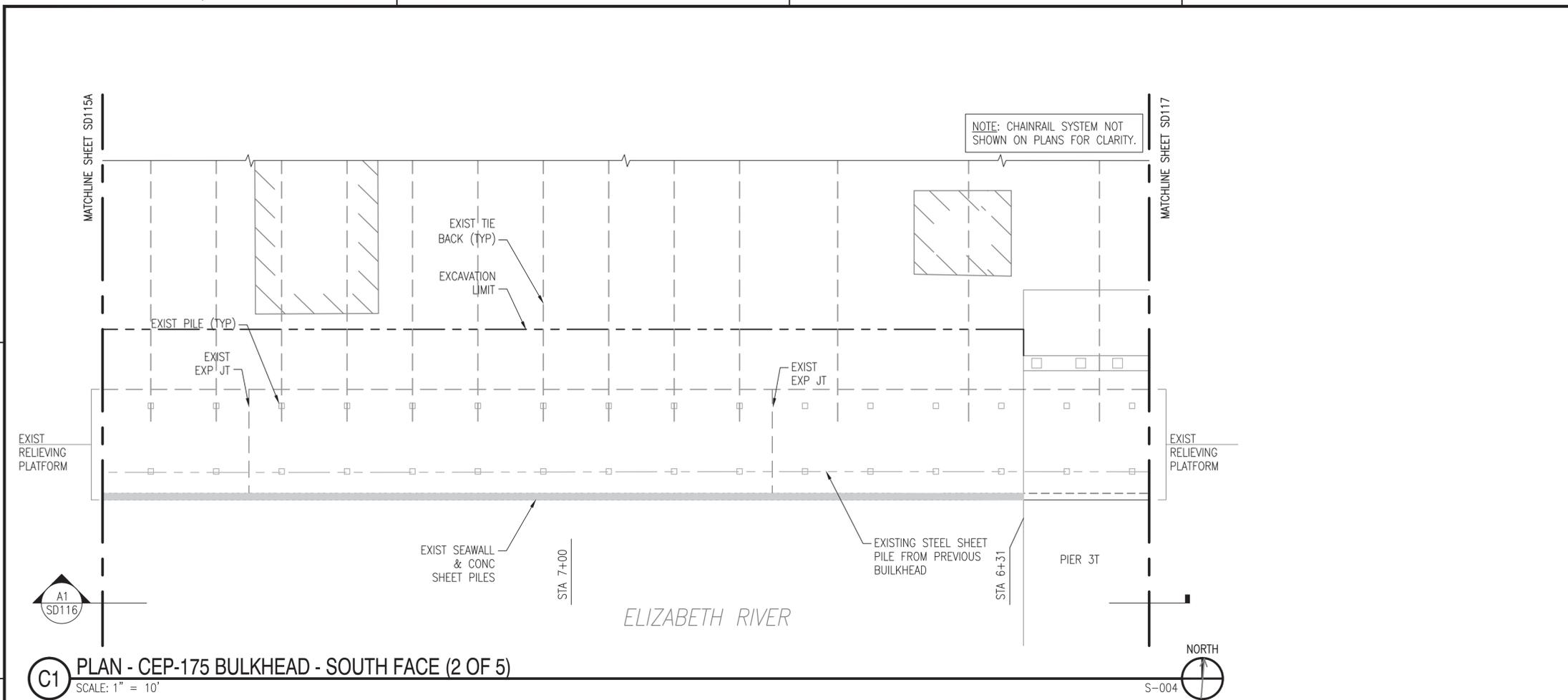
DRAWING REVISION: 10 MARCH 2009

FILE NAME: F:\NA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\02_Structural\1370817_SD100_SERIES.dwg LAYOUT NAME: SD116 STRUCTURAL PLAN & ELEV (16 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:41pm USER: kimberly.cadw@2

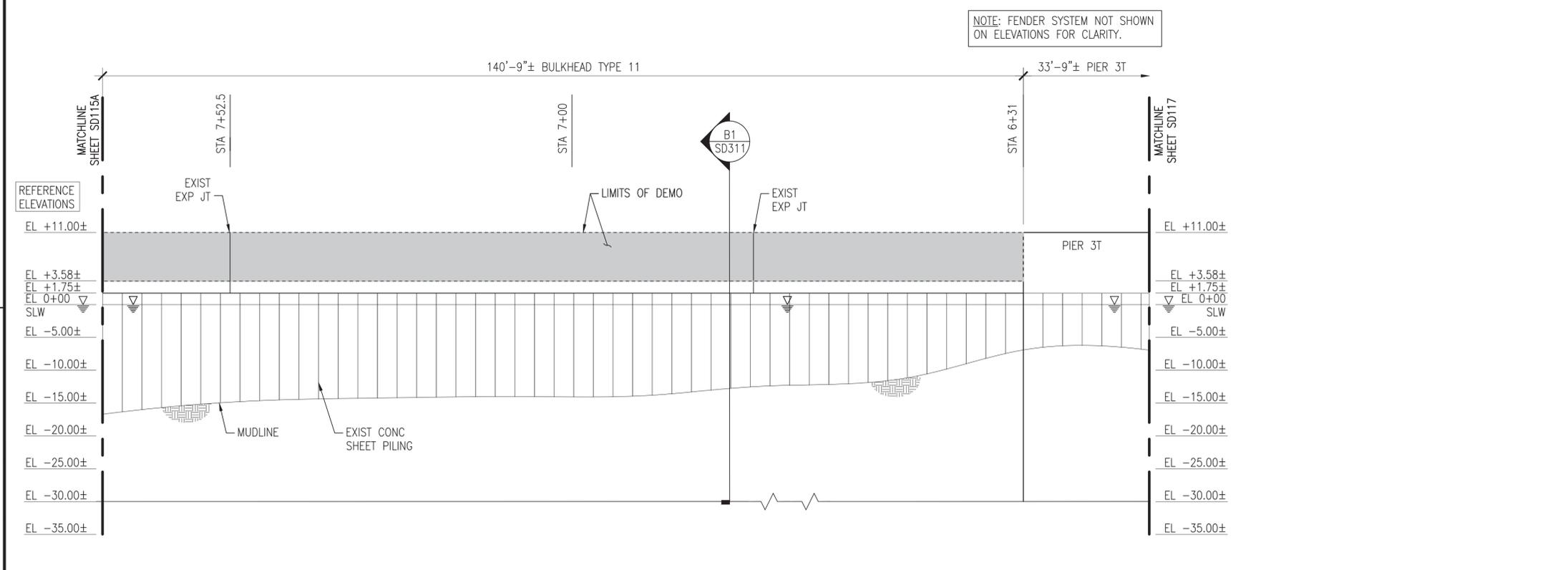
GENERAL SHEET NOTES @ CEP-175

1. DEMOLISH CEP-175 BULKHEAD TIMBER FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, PILES, CHOCKS, WALES, BLOCKING, AND SPACERS.
2. DEMOLISH EXISTING HANDRAIL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHAIN, POSTS, ANCHORS, AND FOUNDATIONS.
3. DEMOLISH EXISTING SEAWALL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, EXISTING CURBING, CLEATS, AND SEAWALL. **NOTE:** PRESERVE EXISTING TURNED-UP REBAR FROM THE RELIEVING PLATFORM FOR REUSE IN THE NEW SEAWALL.
4. MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
5. ELEVATIONS SHOWN ON THE SD SERIES DRAWINGS ARE NOTED AS REFERENCE ELEVATIONS, AND CORRESPOND TO THE PROVIDED AS-BUILT DRAWINGS FOR THE BULKHEAD, WITH THE TOP OF CURBING ELEVATION AT +11.0 FEET ABOVE MLW. THE CONTRACTOR SHALL SET UP TEMPORARY BENCHMARKS AND COORDINATE REAL TIME ELEVATIONS WITH THE CIVIL DRAWINGS AND DATUM PROVIDED ON G-002.

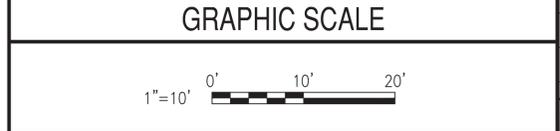
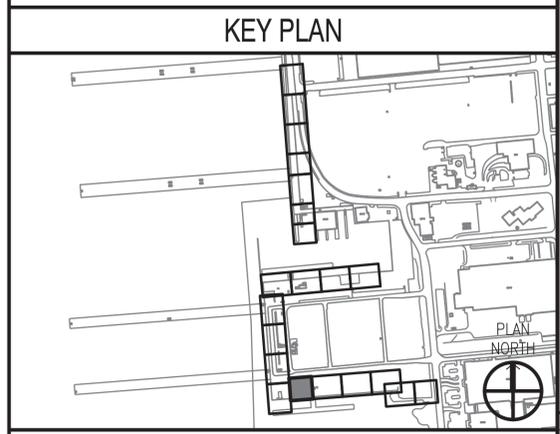
| | |
|---|----------------------|
| | DATE |
| | AUTH |
|  | |
| | SEAL |
| | A/E INFO |
| | APPROVED |
| | FOR COMMANDER NAVFAC |
| | ACTIVITY |
| | SATISFACTORY TO DATE |
| | DESIGN MANAGER |
| | BRANCH MANAGER |
| | CHIEF ENGINEER |
| | FIRE PROTECTION |
| <p>DEPARTMENT OF THE NAVY NAVFACILITIES ENGINEERING COMMAND NORFOLK NAVAL STATION NORFOLK, VIRGINIA</p> <p>CEP-175 AND Z-308 BULKHEAD REPAIR STRUCTURAL PLAN & ELEV (16 OF 21) - DEMO</p> | |
| | SCALE |
| | PROJECT NO. |
| | CONSTR. CONTR. NO. |
| | NAVFAC DRAWING NO. |
| | SHEET |
| <p>SD116</p> <p><small>DRAWING REVISION: 10 MARCH 2009</small></p> | |



C1 PLAN - CEP-175 BULKHEAD - SOUTH FACE (2 OF 5)
SCALE: 1" = 10'

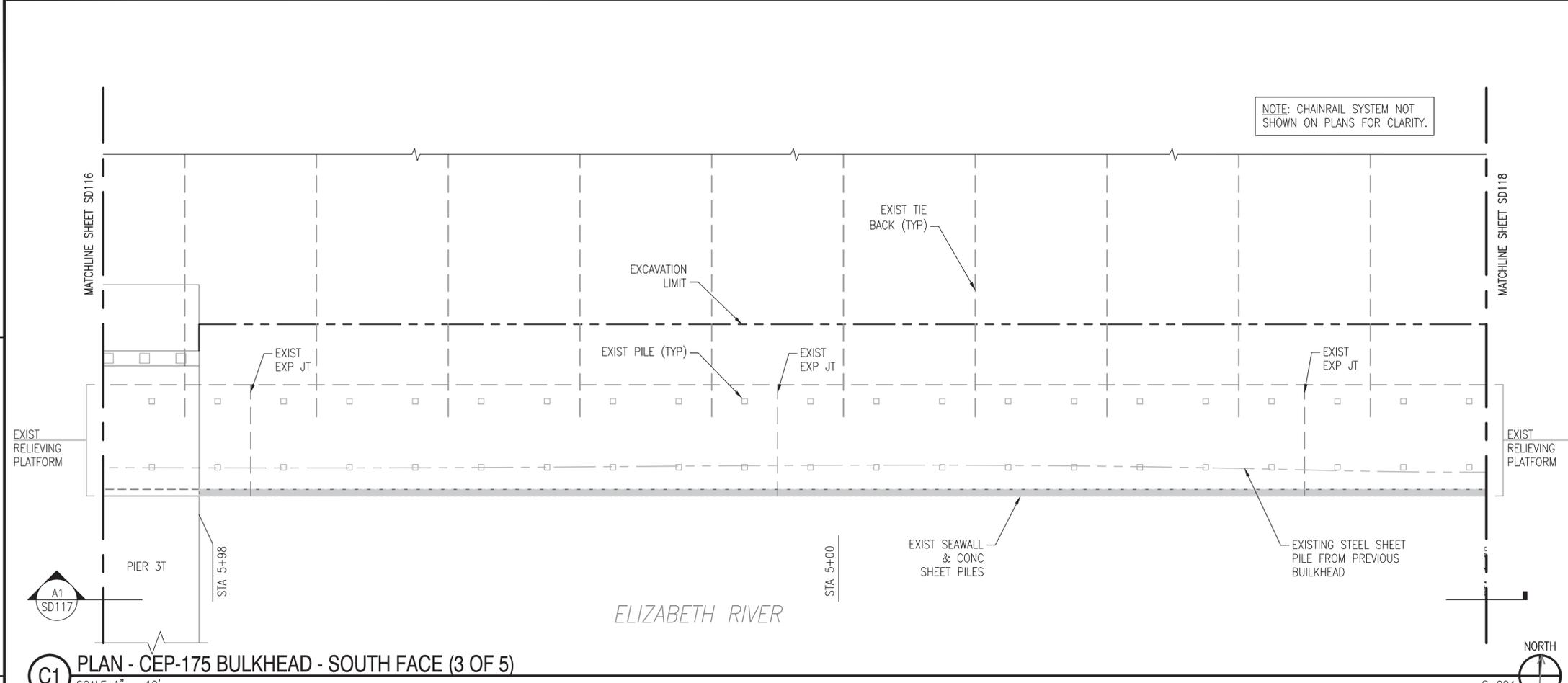


A1 ELEVATION
SCALE: 1" = 10'

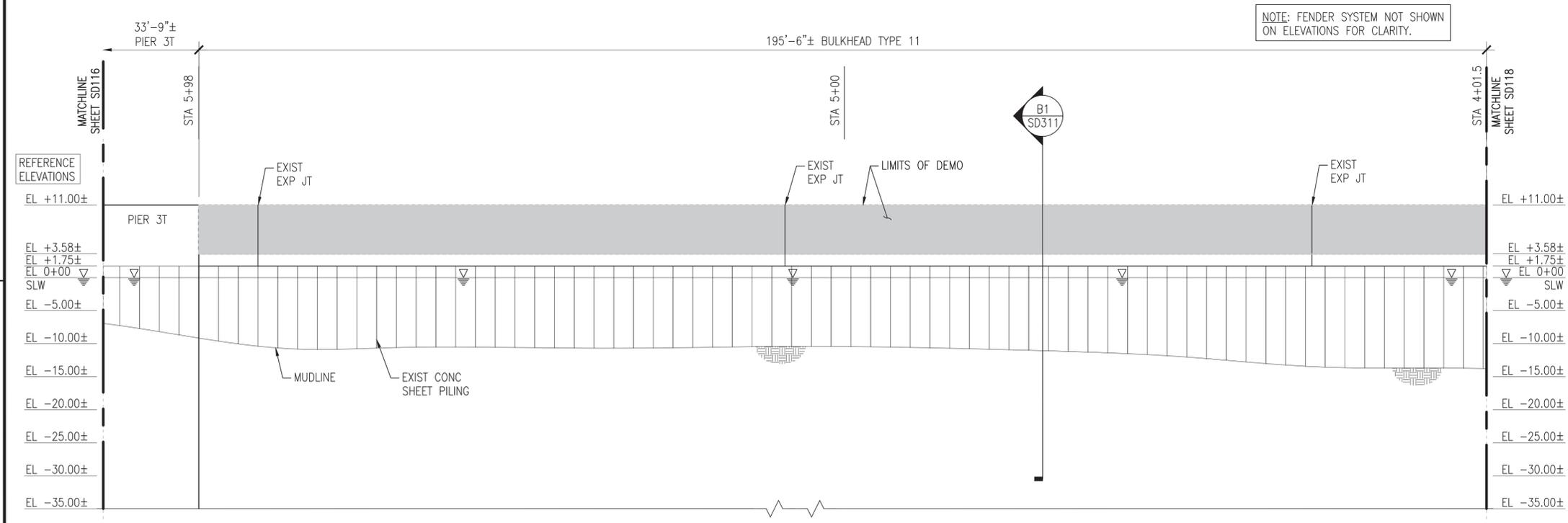


SD116

FILE NAME: P:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\02_Structural\1370817_SD117_STRUCTURAL PLAN & ELEV (17 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:41pm USER: kimberly.cadams2



C1 PLAN - CEP-175 BULKHEAD - SOUTH FACE (3 OF 5)
SCALE: 1" = 10'



A1 ELEVATION
SCALE: 1" = 10'

GENERAL SHEET NOTES @ CEP-175

1. DEMOLISH CEP-175 BULKHEAD TIMBER FENDER SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, PILES, CHOCKS, WALES, BLOCKING, AND SPACERS.
2. DEMOLISH EXISTING HANDRAIL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHAIN, POSTS, ANCHORS, AND FOUNDATIONS.
3. DEMOLISH EXISTING SEAWALL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, EXISTING CURBING, CLEATS, AND SEAWALL. **NOTE:** PRESERVE EXISTING TURNED-UP REBAR FROM THE RELIEVING PLATFORM FOR REUSE IN THE NEW SEAWALL.
4. MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.
5. ELEVATIONS SHOWN ON THE SD SERIES DRAWINGS ARE NOTED AS REFERENCE ELEVATIONS, AND CORRESPOND TO THE PROVIDED AS-BUILT DRAWINGS FOR THE BULKHEAD, WITH THE TOP OF CURBING ELEVATION AT +11.0 FEET ABOVE MLW. THE CONTRACTOR SHALL SET UP TEMPORARY BENCHMARKS AND COORDINATE REAL TIME ELEVATIONS WITH THE CIVIL DRAWINGS AND DATUM PROVIDED ON G-002.

| NO. | DESCRIPTION | DATE | APPR. |
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APPROVED: *[Signature]*
FOR COMMANDER NAVFAC: 7-12-16
ACTIVITY: DAVE SEARS

| |
|---------------------------------|
| SATISFACTORY TO DATE: 6/17/2016 |
| DES: ELT DRW: KAD CHK: CLT |
| DESIGN MANAGER: EDDY THEISZ |
| BRANCH MANAGER: CRY |
| CHIEF ENGINEER: J. HASTE, P.E. |
| FIRE PROTECTION: |

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA

CEP-175 AND Z-308 BULKHEAD REPAIR
STRUCTURAL PLAN & ELEV (17 OF 21) - DEMO

KEY PLAN



GRAPHIC SCALE



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| SCALE: AS NOTED |
| PROJECT NO.: 1370817 |
| CONSTR. CONTR. NO.: N/A |
| NAVFAC DRAWING NO.: 12,729,720 |
| SHEET 65 OF 158 |
| SD117 |

DRAWING REVISION: 10 MARCH 2009

FILE NAME: F:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD120_STRUCTURAL PLAN & ELEV (20 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:45pm USER: kimberly.cadwell



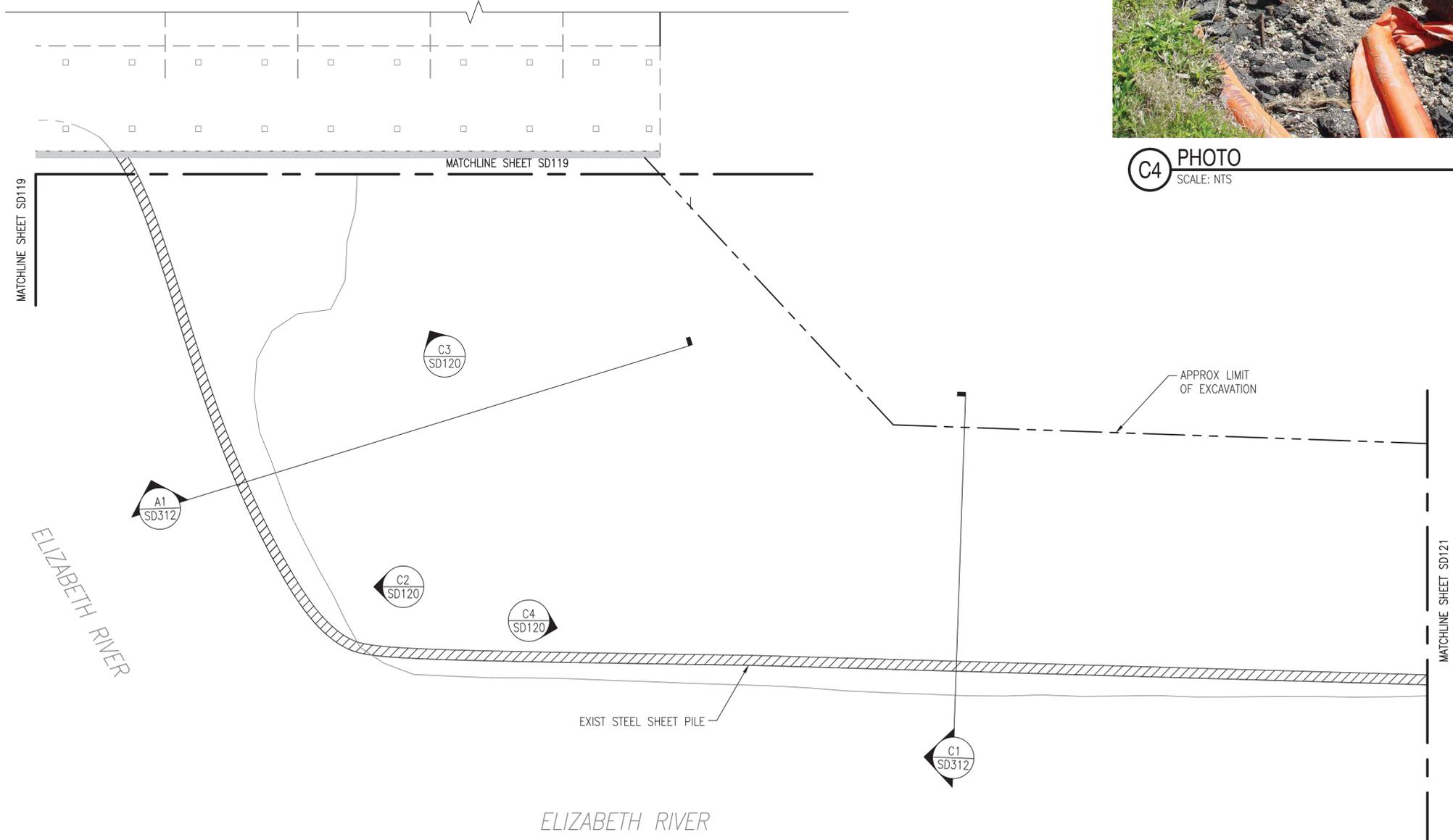
C2 PHOTO
SCALE: NTS
SD120



C3 PHOTO
SCALE: NTS
SD120



C4 PHOTO
SCALE: NTS
SD120



A1 PLAN - PATRIOT'S POINT (1 OF 2)
SCALE: 1" = 10'

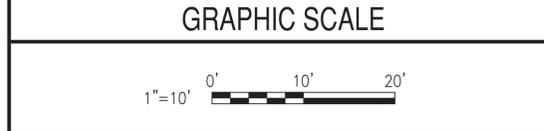
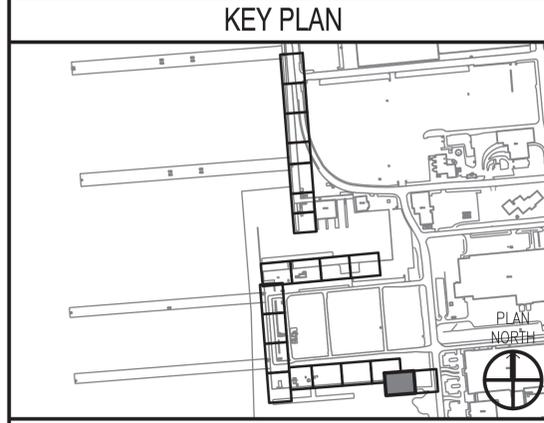
GENERAL SHEET NOTES @ PP

- EXCAVATE AND DEMOLISH THE DEBRIS AND FILL MATERIAL BEHIND THE EXISTING PATRIOT'S POINT BULKHEAD.
- CUT AND DEMOLISH THE EXISTING BULKHEAD DOWN TO MUDLINE, AFTER THE NEW BULKHEAD IS COMPLETED.
- DEMOLISH EXISTING HANDRAIL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHAIN, POSTS, ANCHORS, AND FOUNDATIONS. THIS INCLUDES APPROXIMATELY 20 POSTS AND 200 LINEAR FEET OF CHAIN (STA 0+00 TO STA 2+00). **NOTE:** HANDRAIL SYSTEM NOT SHOWN ON PLANS FOR CLARITY.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.

| NO. | DATE | DESCRIPTION |
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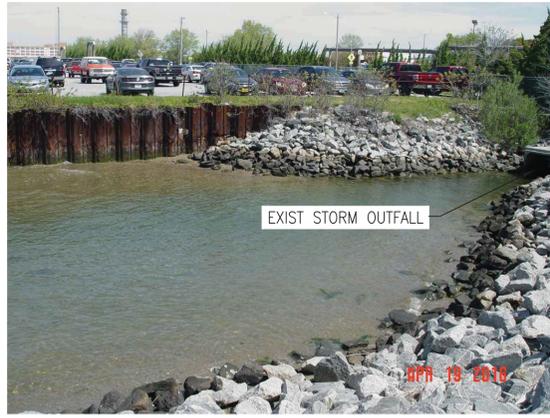


| | |
|----------------------|-----------------------------|
| APPROVED | A/E INFO |
| <i>[Signature]</i> | |
| FOR COMMANDER NAVFAC | 7-12-16 |
| ACTIVITY | |
| DAVE SEARS | |
| SATISFACTORY TO DATE | 6/17/2016 |
| DES | ELT DRW KAD CHK CLT |
| DESIGN MANAGER | EDDY THEISZ |
| BRANCH MANAGER | |
| CHIEF ENGINEER | J. HASTE, P.E. |
| FIRE PROTECTION | |



| | |
|---|-----------------------|
| DEPARTMENT OF THE NAVY | NAVFAC |
| NAVAL FACILITIES ENGINEERING COMMAND | NORFOLK NAVAL STATION |
| NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC | NORFOLK, VIRGINIA |
| HAMPSON ROUS IFT - PND NORFOLK | |
| NORFOLK NAVAL STATION | |
| CEP-175 AND Z-308 BULKHEAD REPAIR | |
| STRUCTURAL PLAN & ELEV (20 OF 21) - DEMO | |
| SCALE: | AS NOTED |
| PROJECT NO. | 1370817 |
| CONSTR. CONTR. NO. | N/A |
| NAVFAC DRAWING NO. | 12,729,723 |
| SHEET | 68 OF 158 |
| SD120 | |
| DRAWFORM REVISION: | 10 MARCH 2009 |

FILE NAME: F:\VA\NavalStationNorfolk\Waterfront\Bulwarks\2015_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD100_SERIES.dwg LAYOUT NAME: SD121_STRUCTURAL PLAN & ELEV (21 OF 21) - DEMO PLOTTED: Tuesday, July 12, 2016 - 12:45pm USER: kimberly.cadwell



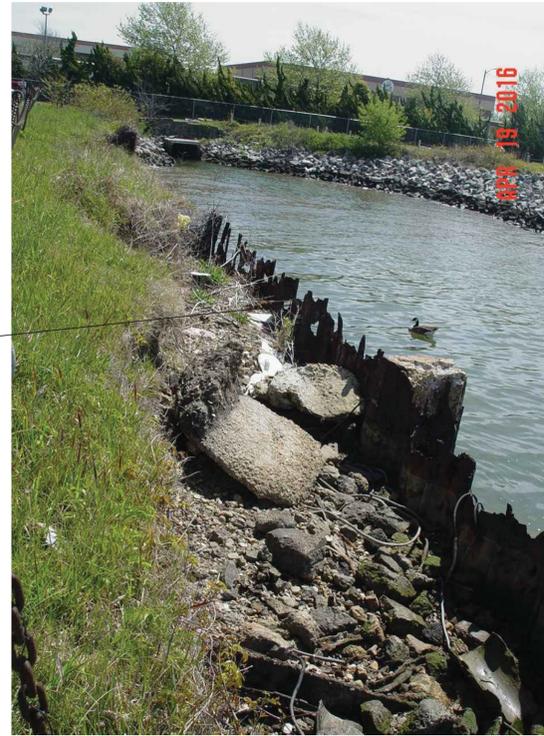
C2 PHOTO
SCALE: NTS

SD121



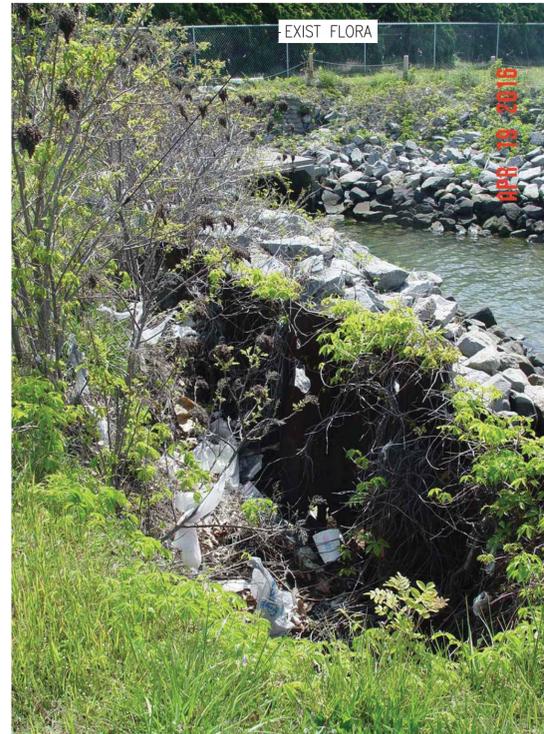
C3 PHOTO
SCALE: NTS

SD121



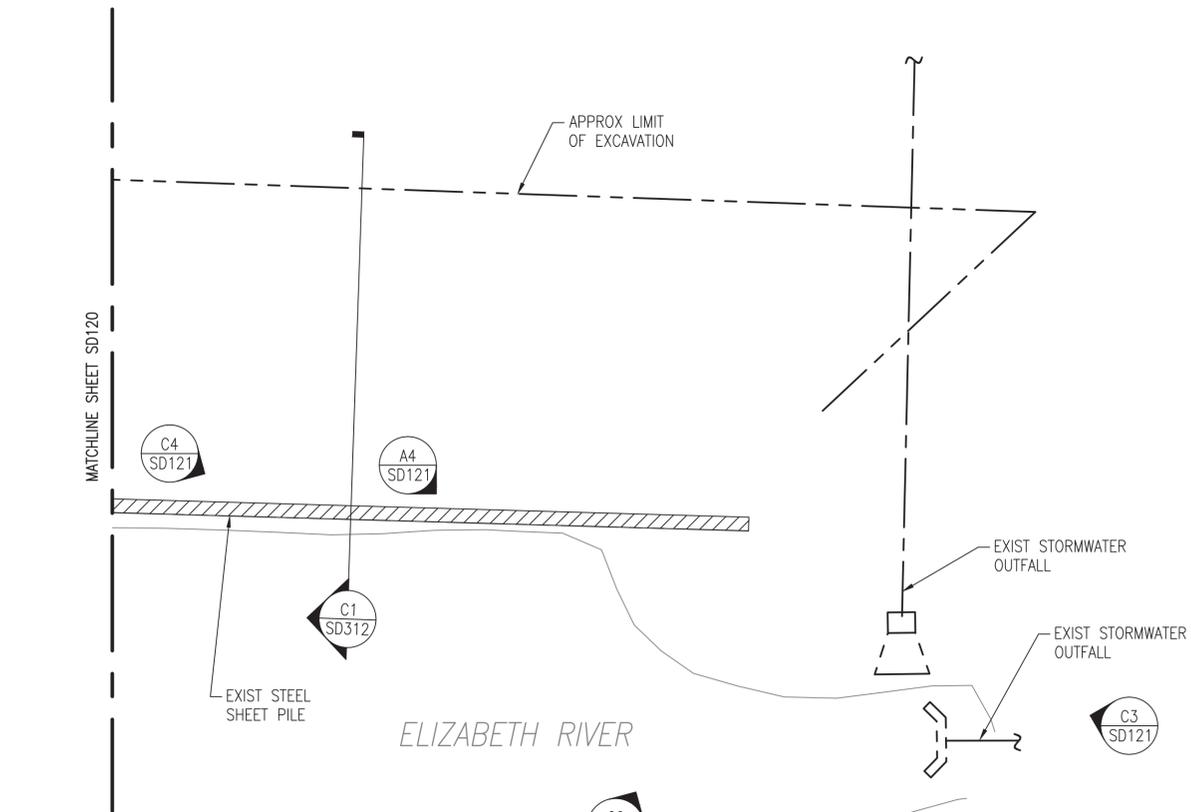
C4 PHOTO
SCALE: NTS

SD121



A4 PHOTO
SCALE: NTS

SD121



A1 PLAN - PATRIOT'S POINT (2 OF 2)
SCALE: 1" = 10'

C2 SD121

C3 SD121



GENERAL SHEET NOTES @ PP

- EXCAVATE AND DEMOLISH THE DEBRIS AND FILL MATERIAL BEHIND THE EXISTING PATRIOT'S POINT BULKHEAD.
- CUT AND DEMOLISH THE EXISTING BULKHEAD DOWN TO MUDLINE, AFTER THE NEW BULKHEAD IS COMPLETED.
- DEMOLISH EXISTING HANDRAIL SYSTEM COMPLETE, TO INCLUDE, BUT NOT LIMITED TO, CHAIN, POSTS, ANCHORS, AND FOUNDATIONS. THIS INCLUDES APPROXIMATELY 20 POSTS AND 200 LINEAR FEET OF CHAIN (STA 0+00 TO STA 2+00). **NOTE:** HANDRAIL SYSTEM NOT SHOWN ON PLANS FOR CLARITY.
- MUDLINE INFORMATION IS BASED UPON NAVFAC HYDROLOGICAL SURVEY DATA FROM JANUARY 2015 AND IS PROVIDED FOR REFERENCE ONLY.



| NO. | DESCRIPTION | DATE |
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SEAL

A/E INFO

APPROVED: *[Signature]*
 FOR COMMANDER NAVFAC: 7-12-16
 ACTIVITY: DAVE SEARS
 SATISFACTORY TO DATE: 6/17/2016
 DES: ELT | DRW: KAD | CHK: CLT
 DESIGN MANAGER: EDDY THEISZ
 BRANCH MANAGER: CRY
 CHIEF ENGINEER: J. HASTE, P.E.
 FIRE PROTECTION:

NAVAL FACILITIES ENGINEERING COMMAND
 NORFOLK NAVAL STATION
 NORFOLK, VIRGINIA

CEP-175 AND Z-308 BULKHEAD REPAIR
 STRUCTURAL PLAN & ELEV (21 OF 21) - DEMO

KEY PLAN



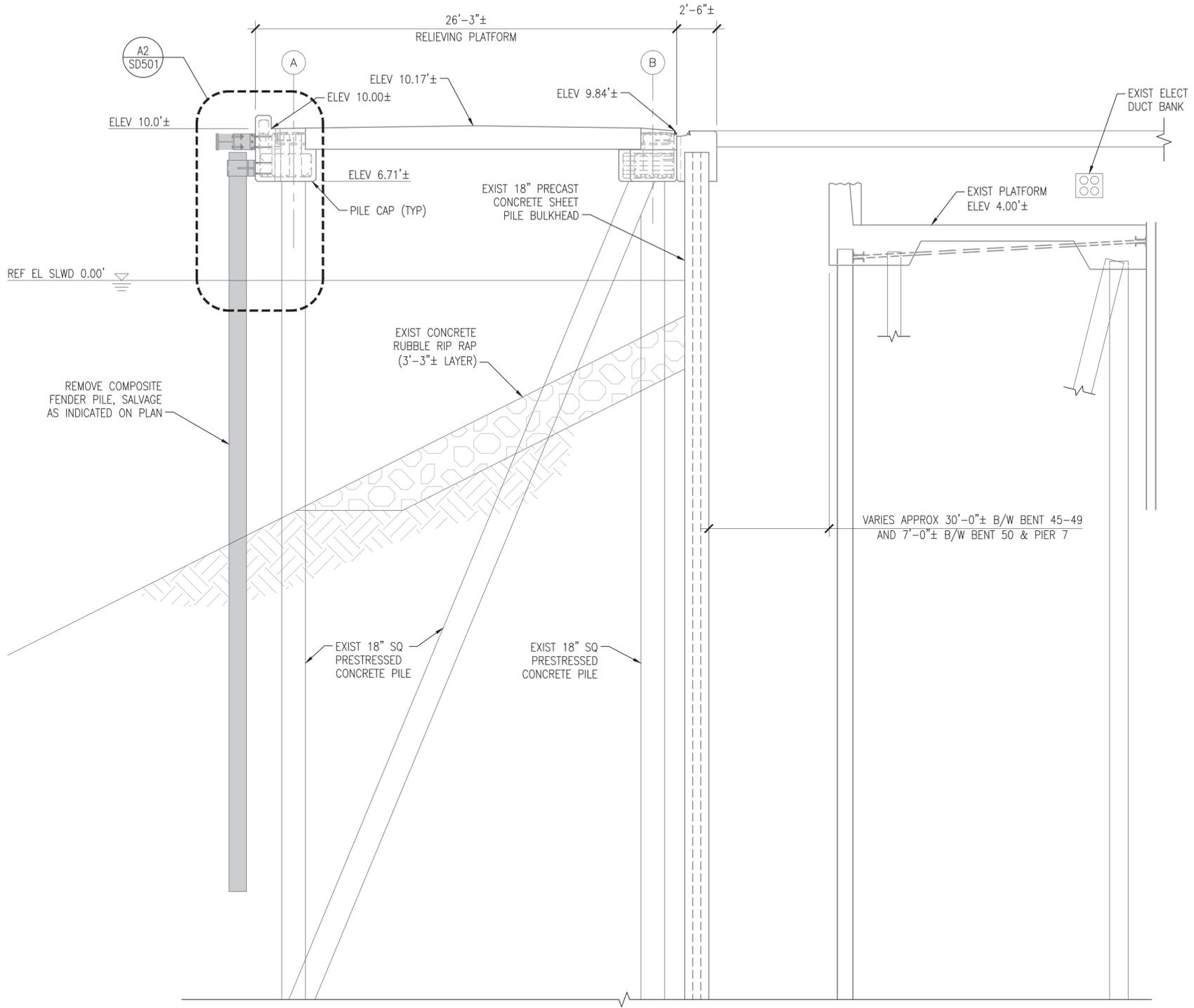
GRAPHIC SCALE



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| SCALE: | AS NOTED |
| PROJECT NO.: | 1370817 |
| CONSTR. CONTR. NO.: | N/A |
| NAVFAC DRAWING NO.: | 12,729,724 |
| SHEET: | 69 OF 158 |
| SD121 | |

DRAWFORM REVISION: 10 MARCH 2009

FILE NAME: F:\NA\NavalStationNorfolk\Waterfront\Bulkheads\2016_1370817_CEP-1752-308Repair\B_Design\Drawings\Sheet\07_Structural\SD301_DEMOLITION SECTIONS PLOTTED: Tuesday, July 12, 2016 - 12:42pm USER: kimberly.davis2



(A1) SECTION - BULKHEAD TYPE 1
SCALE: 1/4" = 1'-0"

SD101

GENERAL SHEET NOTES

1. THE EXCAVATION SLOPES SHOWN ARE APPROXIMATE. PROVIDE SLOPE/ EXCAVATION SHORING IN ACCORDANCE WITH COE-EM385.
2. REFER TO PLAN FOR LOCATIONS OF GROUT CURTAIN WORK.

| NO. | DATE | DESCRIPTION |
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APPROVED: *[Signature]*
FOR COMMANDER NAVFAC: 7-12-16
ACTIVITY: DAVE SEARS

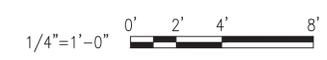
NAVFAC DRAWING NO. 12,729,725
SHEET 70 OF 158
SD301

DEPARTMENT OF THE NAVY
NAVFACILITIES ENGINEERING COMMAND - MID-ATLANTIC
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA

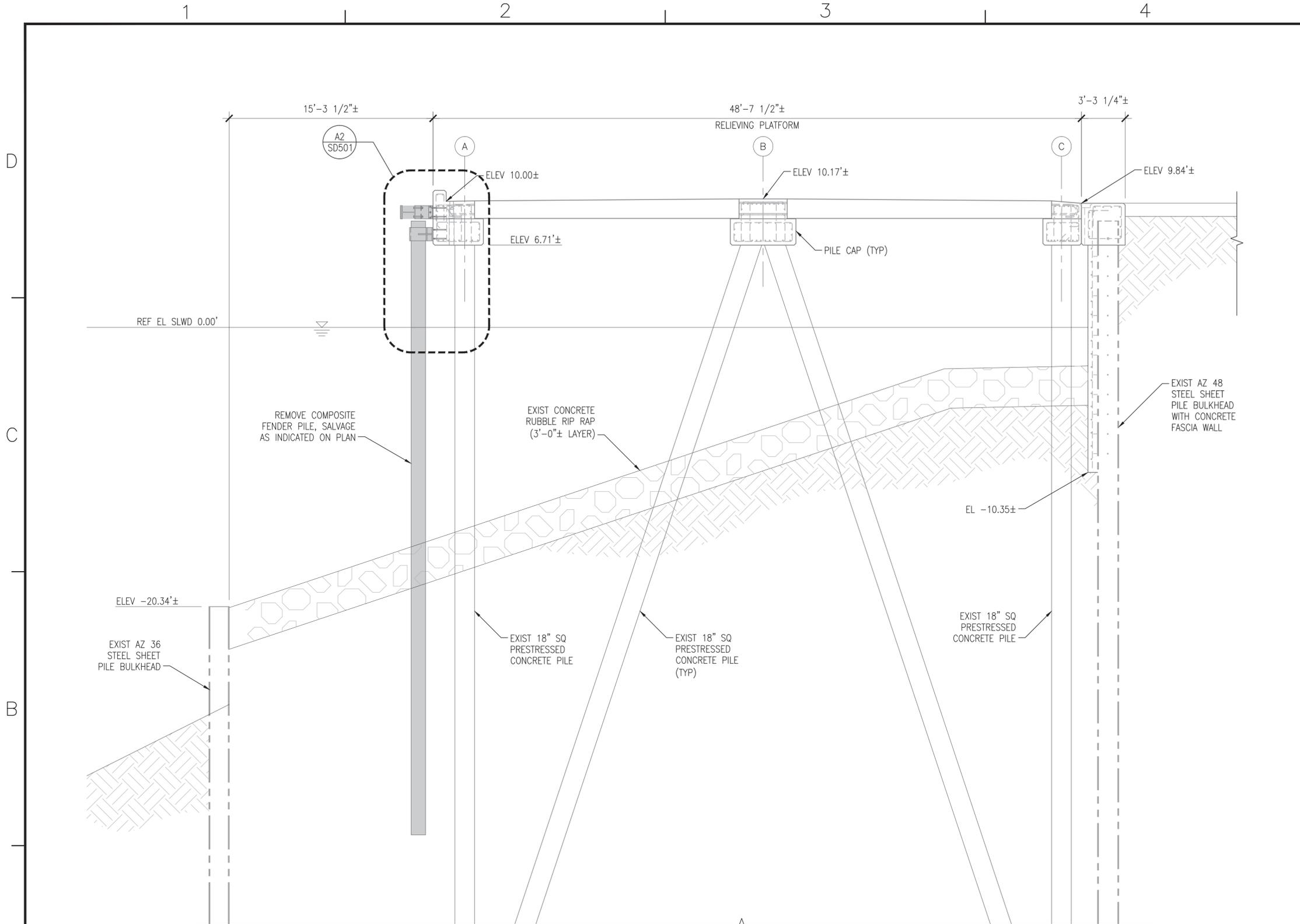
CEP-175 AND Z-308 BULKHEAD REPAIR
DEMOLITION SECTIONS

SCALE: AS NOTED
PROJECT NO. 1370817
CONSTR. CONTR. NO. N/A
NAVFAC DRAWING NO. 12,729,725
SHEET 70 OF 158
SD301
DRAWING REVISION: 10 MARCH 2009

GRAPHIC SCALE



FILE NAME: F:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-175Z-308Repar\B_Design\Drawings\Sheet\07_Structural\1370817_SD303_DEMOLITION SECTIONS PLOTTED: Tuesday, July 12, 2016 - 12:42pm USER: kimberly.adamsz



(A1) SECTION - BULKHEAD TYPE 3
SCALE: 1/4" = 1'-0"

SD105 TO SD106

GRAPHIC SCALE



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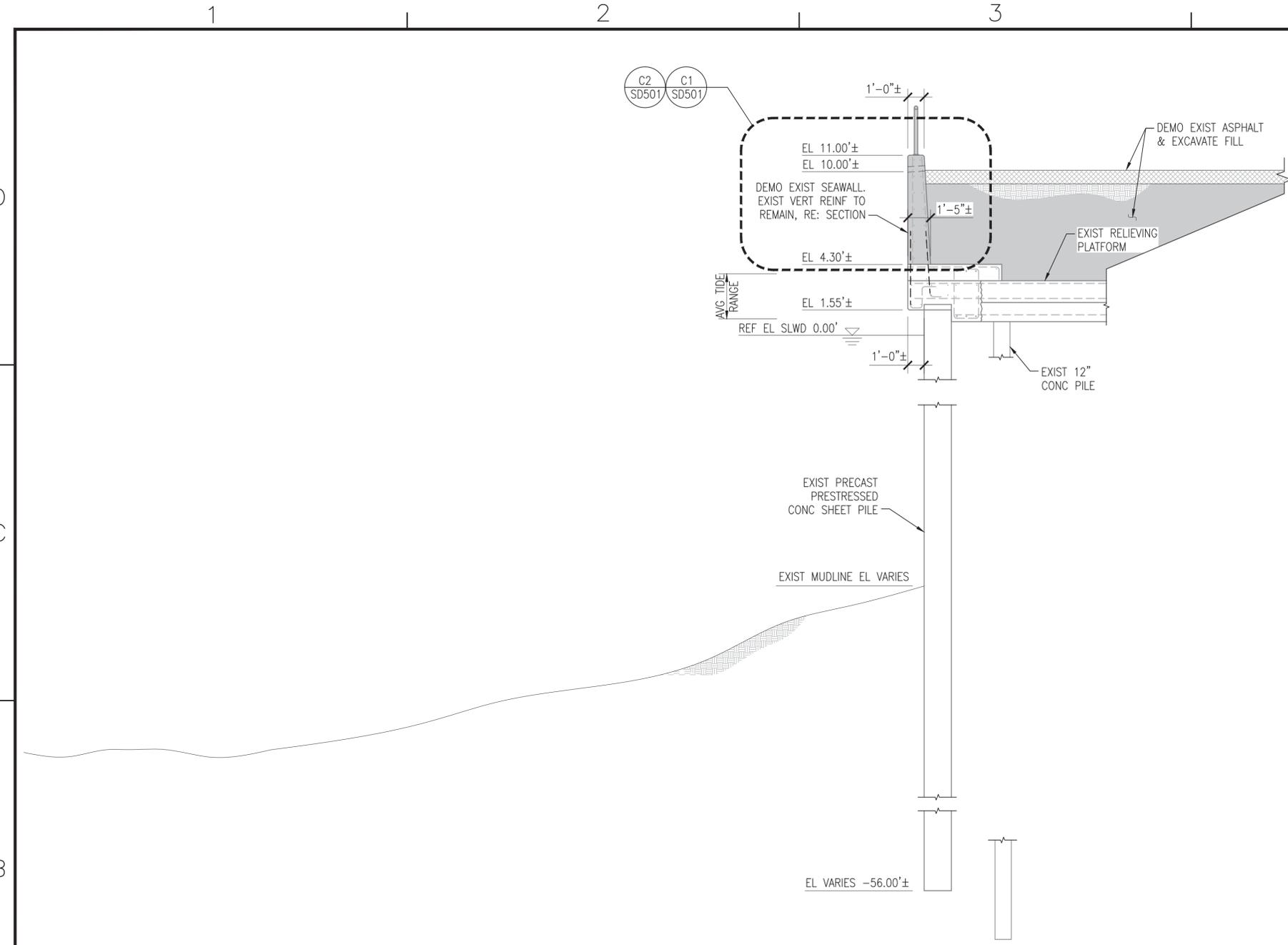
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| APPROVED | <i>[Signature]</i> |
| FOR COMMANDER NAVFAC | 7-12-16 |
| ACTIVITY | |
| DAVE SEARS | |
| SATISFACTORY TO DATE | 6/17/2016 |
| DES | ELT DRW CMR CHK CLT |
| DESIGN MANAGER | EDDY THEISZ |
| BRANCH MANAGER | |
| CHIEF ENGINEER | J. HASTE, P.E. |
| FIRE PROTECTION | |

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|-----------------------------------|---|
| DEPARTMENT OF THE NAVY | NAVAL FACILITIES ENGINEERING COMMAND |
| HAMPSON ROUS IFT - FMD NORFOLK | NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC |
| NORFOLK NAVAL STATION | NORFOLK NAVAL STATION |
| NORFOLK, VIRGINIA | NORFOLK, VIRGINIA |
| CEP-175 AND Z-308 BULKHEAD REPAIR | DEMOLITION SECTIONS |

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| SCALE: | AS NOTED |
| PROJECT NO. | 1370817 |
| CONSTR. CONTR. NO. | N/A |
| NAVFAC DRAWING NO. | 12,729,727 |
| SHEET | 72 OF 158 |
| SD303 | |
| DRAWFORM REVISION: | 10 MARCH 2009 |

FILE NAME: F:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2016_1370817_CEP-175Z-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_SD308 DEMOLITION SECTIONS PLOTTED: Tuesday, July 12, 2016 - 12:42pm USER: kimberly.davis2



B1 SECTION - BULKHEAD TYPE 8
SCALE: 1/4" = 1'-0"

SD111

GENERAL SHEET NOTES

- EXISTING FENDERING SYSTEM NOT SHOWN. REFER TO PLANS AND SECTIONS FOR FENDERING TO BE DEMOLISHED.
- TYPICAL EXCAVATION NOTES:
- ABANDONED UTILITIES ENCOUNTERED DURING EXCAVATION SHALL BE REMOVED TO THE LIMIT OF EXCAVATION. PLUG ALL REMAINING ENDS WATER TIGHT.
 - EXISTING ACTIVE UTILITIES SHALL BE TEMPORARILY SUPPORTED DURING CONSTRUCTION UNLESS OTHERWISE NOTED ON CIVIL OR ELECTRICAL PLANS. TEMPORARY SUPPORTS SHOULD BE SUFFICIENT TO WITHSTAND ALL CONDITIONS FOR LENGTH OF TIME THE UTILITY IS EXPOSED.
 - THE EXCAVATION SLOPE SHOWN IS APPROXIMATE. PROVIDE SLOPE/ EXCAVATION SHORING IN ACCORDANCE WITH COE-EM385.

| NO. | DATE | DESCRIPTION | BY | CHK | APP |
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APPROVED: *[Signature]*
FOR COMMANDER NAVFAC: 7-12-16
ACTIVITY: DAVE SEARS
SATISFACTORY TO DATE: 6/17/2016
DES: ELT | DRW: CMR | CHK: CLT
DESIGN MANAGER: EDDY THEISZ
BRANCH MANAGER: CRY
CHIEF ENGINEER: J. HASTE, P.E.
FIRE PROTECTION:

DEPARTMENT OF THE NAVY
NAVFACILITIES ENGINEERING COMMAND
NAVFACILITIES ENGINEERING COMMAND-MID-ATLANTIC
HAMPTON ROADS IPT - FMD NORFOLK
NORFOLK NAVAL STATION
NORFOLK, VIRGINIA
CEP-175 AND Z-308 BULKHEAD REPAIR
DEMOLITION SECTIONS

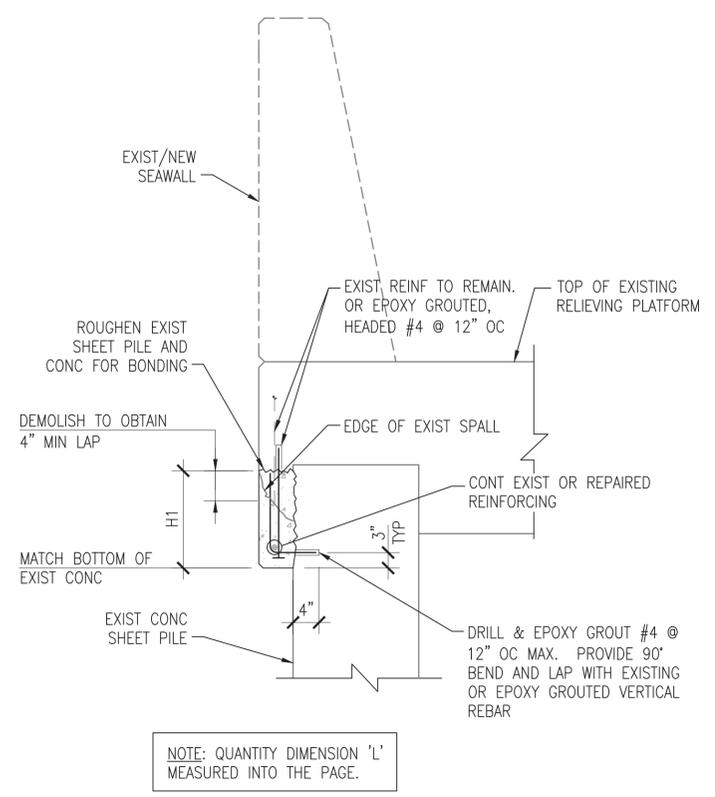
GRAPHIC SCALE



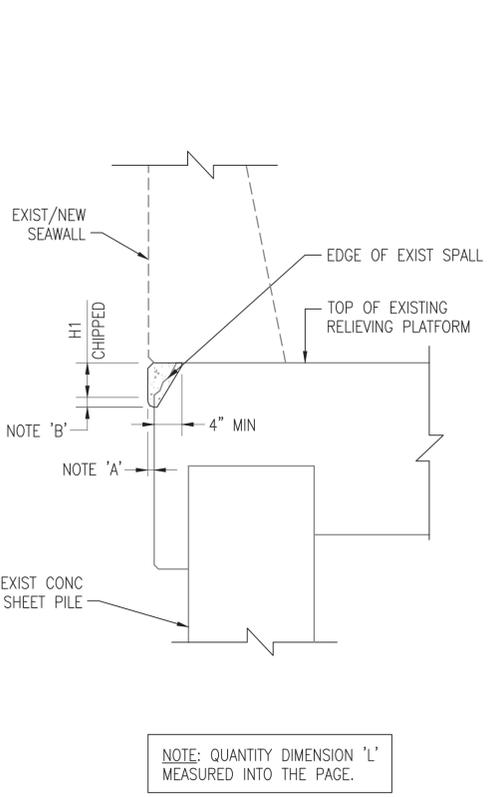
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| SCALE: | AS NOTED |
| PROJECT NO.: | 1370817 |
| CONSTR. CONTR. NO.: | N/A |
| NAVFAC DRAWING NO.: | 12,729,732 |
| SHEET: | 77 OF 158 |
| SD308 | |

DRAWFORM REVISION: 10 MARCH 2009

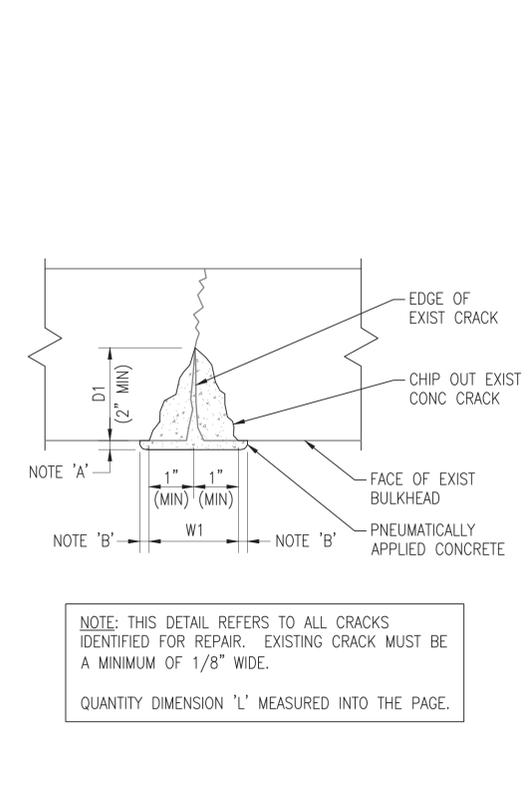
FILE NAME: P:\VA\NavalStationNorfolk\Waterfront\Bulkheads\2015_1370817_CEP-1752-308Repair\B_Design\Drawings\Sheet\07_Structural\1370817_S-500_SERIES.dwg LAYOUT NAME: SD502 CONCRETE REPAIR DETAILS PLOTTED: Tuesday, July 12, 2016 - 12:43pm USER: kimberly.abasz



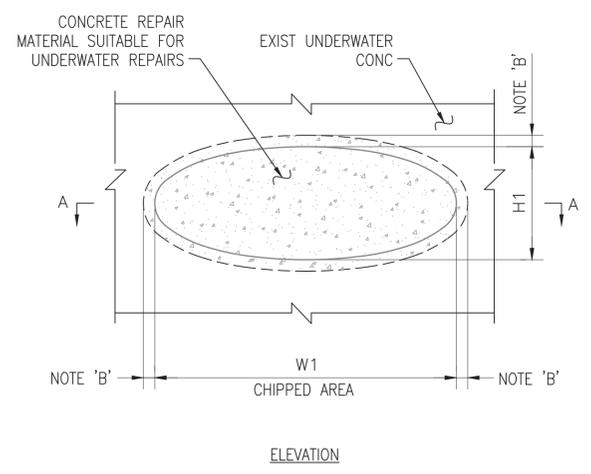
C1 **BOTTOM CORNER SPALL REPAIR - TYPE 1**
SCALE: NTS SD101 TO SD103, SD105, SD107



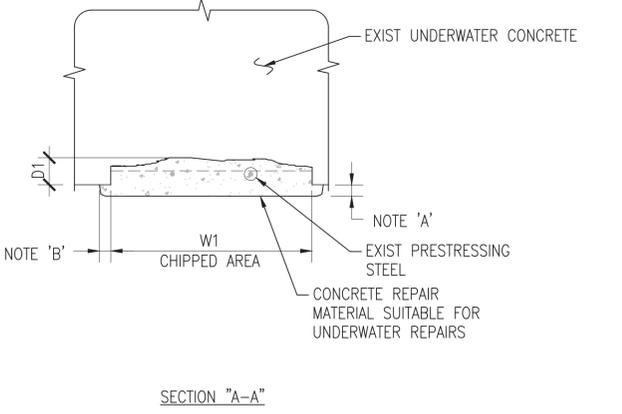
C2 **TOP CORNER SPALL REPAIR - TYPE 2**
SCALE: NTS SD101, SD102, SD105, SD106



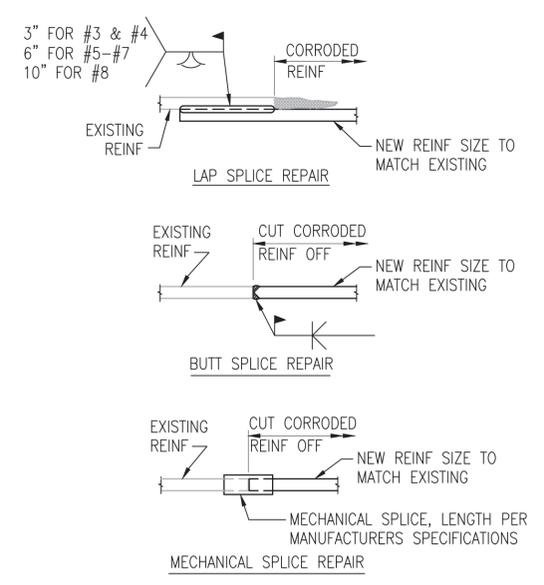
C3 **CRACK REPAIR - TYPE 3**
SCALE: NTS TYP



A1 **CONC SHEET PILE AND UNDERWATER SPALL REPAIR - TYPE 4**
SCALE: NTS SD101, SD102, SD106 TO SD108, SD111A TO SD116



NOTE: PREPARATION OF EXISTING CONCRETE AND REINFORCEMENT SHALL BE SIMILAR TO ABOVE WATER REPAIRS. REMOVE ALL MARINE GROWTH.



REINFORCING REPAIR SCHEDULE

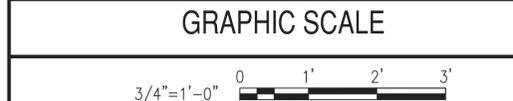
| BAR SIZE/LOCATION | PERMISSIBLE SPLICE TYPE | | |
|------------------------------------|-------------------------|------|-------|
| | LAP | BUTT | MECH. |
| #3 TIES, TRANSVERSE & LONGITUDINAL | ● | | |
| #4 TIES, TRANSVERSE & LONGITUDINAL | ● | | |
| #5 TRANSVERSE & LONGITUDINAL | ● | ● | ● |
| #6 TRANSVERSE & LONGITUDINAL | ● | ● | ● |
| #7 TRANSVERSE & LONGITUDINAL | ● | ● | ● |
| #8 TRANSVERSE & LONGITUDINAL | | ● | ● |
| #9 TRANSVERSE & LONGITUDINAL | | | ● |
| #10 TRANSVERSE & LONGITUDINAL | | | ● |
| #11 TRANSVERSE & LONGITUDINAL | | | ● |

B5 **EXISTING REINFORCING REPAIR - TYPE 5**
SCALE: NTS TYP

GENERAL SHEET NOTES

NOTE A: ALL PNEUMATICALLY APPLIED CONCRETE SHALL CONFORM TO THE ORIGINAL CONTOUR OF THE MEMBER BEING REPAIRED AND SHALL MAINTAIN THE CONCRETE COVER OF EXISTING REINFORCING STEEL INDICATED IN THE REPAIR DETAILS. AFTER THE REMOVAL OF DELAMINATED OR DETERIORATED CONCRETE, IF THE ORIGINAL REINF. COVER WAS LESS THAN INDICATED (OR IF NOT INDICATED), THE CONTRACTOR SHALL THICKEN CONCRETE REPAIR TO PROVIDE A MINIMUM 3" COVER OVER REINFORCEMENT, EXCEPT WHERE THICKENING WILL INTERFERE WITH CONNECTION OF THE FENDERING SYSTEM.

NOTE B: PROVIDE A 1/2" WIDE CHAMFERED EDGE OVERLAP OF REMAINING SOUND CONCRETE ALL AROUND REPAIR AREA.



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| APPROVED: | | | | | | | | | | | | | | | | | | | | | | | |
| FOR COMMANDER NAVFAC: 7-12-16 | | | | | | | | | | | | | | | | | | | | | | | |
| ACTIVITY: | | | | | | | | | | | | | | | | | | | | | | | |
| DAVE SEARS | | | | | | | | | | | | | | | | | | | | | | | |
| SATISFACTORY TO DATE: 6/17/2016 | | | | | | | | | | | | | | | | | | | | | | | |
| DES: CMR DRW: CMR CHK: CLT | | | | | | | | | | | | | | | | | | | | | | | |
| DESIGN MANAGER: EDDY THEISZ | | | | | | | | | | | | | | | | | | | | | | | |
| BRANCH MANAGER: CPT | | | | | | | | | | | | | | | | | | | | | | | |
| CHIEF ENGINEER: J. HASTE, P.E. | | | | | | | | | | | | | | | | | | | | | | | |
| FIRE PROTECTION: | | | | | | | | | | | | | | | | | | | | | | | |
| DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC HAMPTON ROADS IFT - PND NORFOLK NORFOLK NAVAL STATION NORFOLK, VIRGINIA | | | | | | | | | | | | | | | | | | | | | | | |
| CEP-175 AND Z-308 BULKHEAD REPAIR | | | | | | | | | | | | | | | | | | | | | | | |
| CONCRETE REPAIR DETAILS | | | | | | | | | | | | | | | | | | | | | | | |
| SCALE: AS NOTED | | | | | | | | | | | | | | | | | | | | | | | |
| PROJECT NO.: 1370817 | | | | | | | | | | | | | | | | | | | | | | | |
| CONSTR. CONTR. NO.: N/A | | | | | | | | | | | | | | | | | | | | | | | |
| NAVFAC DRAWING NO.: 12,729,739 | | | | | | | | | | | | | | | | | | | | | | | |
| SHEET 84 OF 158 | | | | | | | | | | | | | | | | | | | | | | | |
| SD502 | | | | | | | | | | | | | | | | | | | | | | | |
| <small>DRAWING REVISION: 10 MARCH 2009</small> | | | | | | | | | | | | | | | | | | | | | | | |

