



PORT OF GRAYS HARBOR

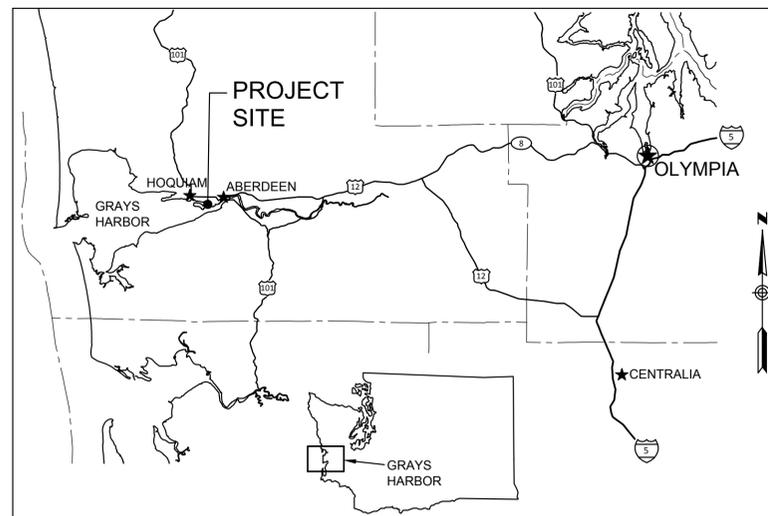
28th Street Boat Launch Improvements Construction Phase II CONTRACT No. 1804

PORT COMMISSIONERS:

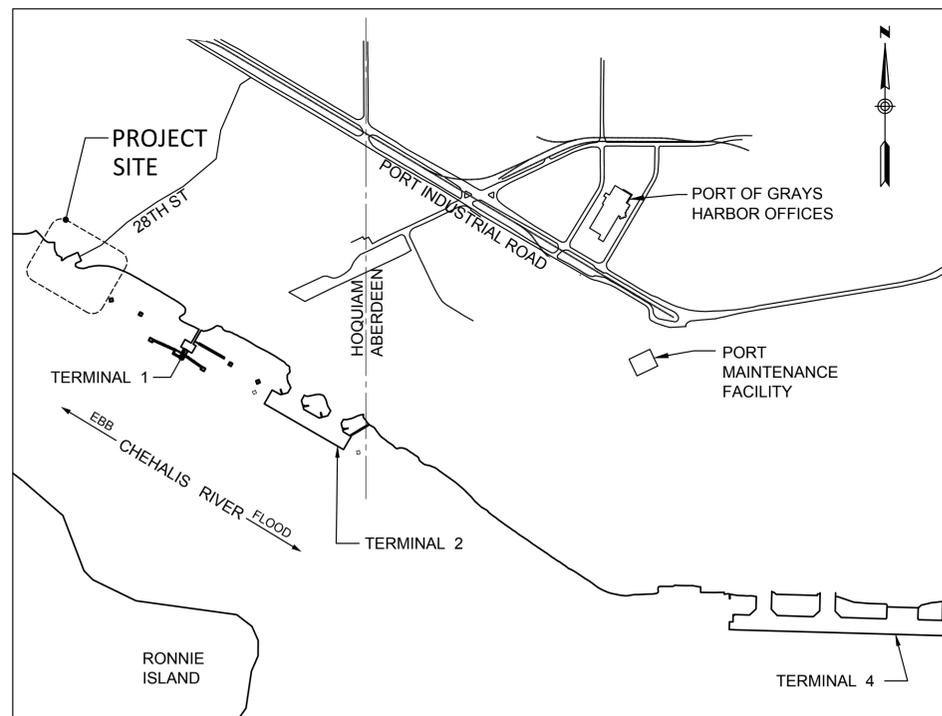
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VICINITY MAP



LOCATION MAP

SHEET NO.	DRAWING NO.	DRAWING TITLE
GENERAL		
1	G-1	COVER SHEET, VICINITY MAP, DRAWING LIST
2	G-2	GENERAL NOTES
3	G-3	UPLAND CIVIL SPECIFICATIONS - SHEET 1
4	G-4	UPLAND CIVIL SPECIFICATIONS - SHEET 2
5	G-5	UPLAND CIVIL SPECIFICATIONS - SHEET 3
6	G-6	UPLAND CIVIL SPECIFICATIONS - SHEET 4
7	G-7	UPLAND CIVIL SPECIFICATIONS - SHEET 5
CIVIL		
8	C-1	EXISTING CONDITIONS
9	C-2	TESC & DEMO PLAN - SHEET 1
10	C-3	TESC & DEMO PLAN - SHEET 2
11	C-4	TESC & DEMO PLAN - SHEET 3
12	C-5	SITE LAYOUT - SHEET 1
13	C-6	SITE LAYOUT - SHEET 2
14	C-7	SITE LAYOUT - SHEET 3
15	C-8	GRADING & DRAINAGE PLAN - SHEET 1
16	C-9	GRADING & DRAINAGE PLAN - SHEET 2
17	C-10	GRADING & DRAINAGE PLAN - SHEET 3
18	C-11	ENLARGED GRADING & DRAINAGE PLAN
19	C-12	ENLARGED BUILDING GRADING & DRAINAGE PLAN
20	C-13	GRADING & DRAINAGE PROFILES & SECTIONS
21	C-14	GRADING & DRAINAGE DETAILS - SHEET 1
22	C-15	GRADING & DRAINAGE DETAILS - SHEET 2
23	C-16	GRADING & DRAINAGE DETAILS - SHEET 3
24	C-17	GRADING & DRAINAGE DETAILS - SHEET 4
25	C-18	GRADING & DRAINAGE DETAILS - SHEET 5
26	C-19	GRADING & DRAINAGE DETAILS - SHEET 6
27	C-20	PAVING & STRIPING PLAN - SHEET 1
28	C-21	PAVING & STRIPING PLAN - SHEET 2
29	C-22	PAVING & STRIPING PLAN - SHEET 3
30	C-23	PAVING & STRIPING DETAILS
31	C-24	UTILITY PLAN
32	C-25	MISCELLANEOUS DETAILS & SECTIONS - SHEET 1 - RESTROOM BUILDING
33	C-26	MISCELLANEOUS DETAILS & SECTIONS - SHEET 2 - UTILITY DETAILS
STRUCTURAL		
34	S-1	MARINE SITE PLAN
35	S-2	MARINE PILE PLAN
36	S-3	FLOAT/ABUTMENT PLAN AND SECTIONS
37	S-4	FLOAT PLAN AND SECTIONS
38	S-5	GROUNDING SYSTEM PLAN, DETAILS AND FLOAT SECTIONS
39	S-6	BOAT RAMP PLAN AND ELEVATIONS
40	S-7	BOAT RAMP SECTIONS AND DETAILS
41	S-8	BOAT RAMP DETAILS - SHEET 1
42	S-9	BOAT RAMP DETAILS - SHEET 2
43	S-10	ABUTMENT PLAN AND SECTIONS
44	S-11	GUIDE FRAME PLAN AND DETAILS
ELECTRICAL		
45	E-1.0	OVERALL ELECTRICAL SITE PLAN
46	E-1.1	PARTIAL ELECTRICAL SITE PLAN
47	E-1.2	PARTIAL ELECTRICAL SITE PLAN
48	E-2.0	ELECTRICAL DETAILS, PANEL SCHEDULES AND POWER RISER DIAGRAM

BID DOCUMENTS

MARK	REVISION DESCRIPTION	BY	APP.	DATE

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DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II
COVER SHEET, VICINITY MAP, DRAWING LIST

DRAWING NO. **G-1**
PROJECT NO. FAWAT-12-145
DATE: 10/8/14
SHEET NO. 1 OF 48

SECTION 32 11 24 - BASE COURSE

PART 1 - GENERAL

1.01 SUMMARY
A. EXTENT OF WORK: THE EXTENT OF "BASE COURSE" WORK IS INDICATED ON THE PLANS. THE WORK INCLUDES THE REQUIREMENTS FOR PRODUCING, TRANSPORTING, PLACING, SHAPING, AND COMPACTING BASE COURSE IN CONFORMANCE WITH THESE SPECIFICATIONS AND THE DIMENSIONS AND SECTIONS INDICATED ON THE PLANS OR WITHIN THE LINES AND GRADES ESTABLISHED BY THE ENGINEER.

1.02 REFERENCES
A. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 2014 EDITION.

1.03 QUALITY ASSURANCE
A. INSPECTION AND TESTING: SAMPLING AND TESTING OF MATERIALS AND INSTALLATIONS SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE PORT. TESTS, TESTING METHODS, AND RESULTS SHALL BE AS SPECIFIED IN THE PERTINENT SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS.

1.04 SUBMITTALS
A. SIEVE ANALYSES FOR ALL MATERIALS SPECIFIED IN ACCORDANCE WITH SECTION 9-03.9(3) OF WSDOT STANDARD SPECIFICATIONS.
B. CERTIFIED TEST RESULTS OF ALL TESTING REQUIRED UNDER ARTICLE 3.03, FIELD QUALITY CONTROL.

PART 2 - PRODUCTS

2.01 AGGREGATES
A. BASE COURSE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 9-03.9(3) OF WSDOT STANDARD SPECIFICATIONS.

PART 3 - EXECUTION

3.01 EQUIPMENT
A. ALL EQUIPMENT NECESSARY FOR THE SATISFACTORY INSTALLATION OF BASE COURSE SHALL MEET THE REQUIREMENTS OF SECTION 4-04.3(1) OF WSDOT STANDARD SPECIFICATIONS. THE ABOVE SPECIFICATION IS AMENDED TO PROVIDE FOR THE FOLLOWING:
B. EQUIPMENT GRADING MACHINES OR TRIMMERS WITH A SPIRIT LEVEL OR OTHER TYPE SLOPE INDICATOR THAT WILL CONTINUOUSLY INDICATE THE AVERAGE, TRANSVERSE SLOPE OF THE SCREED. BUBBLE OR INDICATOR MOVEMENT SHOULD BE NO LESS THAN 1/8 INCH FOR EACH 0.1% CHANGE IN TRANSVERSE SLOPE.

3.02 PLACEMENT OF BASE COURSE AGGREGATE
A. GENERAL: FOLLOW APPLICABLE REQUIREMENTS OF SECTION 4-04 OF WSDOT STANDARD SPECIFICATIONS.
B. SUBGRADE: PREPARE SUBGRADE AS REQUIRED IN SECTION 4-04.3(2) OF WSDOT STANDARD SPECIFICATIONS, AND OBTAIN APPROVAL OF THE ENGINEER BEFORE PLACING BASE COURSE MATERIAL.
C. MIXING: FOLLOW REQUIREMENTS OF SECTION 4-04.3(3) OF WSDOT STANDARD SPECIFICATIONS.
D. PLACING AND SPREADING: FOLLOW REQUIREMENTS OF SECTION 4-04.3(4) OF WSDOT STANDARD SPECIFICATIONS. THE MAXIMUM LIFT OF ANY COURSE OF MATERIAL SHALL NOT EXCEED 0.35 FEET.
E. SHAPING AND COMPACTION: FOLLOW REQUIREMENTS OF SECTION 4-04.3(5) OF WSDOT STANDARD SPECIFICATIONS. IMMEDIATELY FOLLOWING SPREADING AND SHAPING, EACH LAYER OF SURFACING SHALL BE COMPACTED TO AT LEAST 95% OF THE STANDARD DENSITY ACCORDING TO THE REQUIREMENTS IN SECTION 2-03.3(14)D OF THE WSDOT STANDARD SPECIFICATIONS.
F. MISCELLANEOUS REQUIREMENTS: FOLLOW REQUIREMENTS OF SECTION 4-04.3(7) OF WSDOT STANDARD SPECIFICATIONS.
G. WEATHER LIMITATIONS: FOLLOW REQUIREMENTS OF SECTION 4-04.3(8) OF WSDOT STANDARD SPECIFICATIONS.
H. HAULING: FOLLOW REQUIREMENTS OF SECTION 4-04.3(9) OF WSDOT STANDARD SPECIFICATIONS.

3.03 FIELD QUALITY CONTROL
A. CONTRACTOR SHALL PERFORM IN-PLACE COMPACTION & MOISTURE CONTENT TESTING IN ACCORDANCE WITH SECTION 4-04.3(5) AND SECTION 2-03.3(14)D OF THE WSDOT STANDARD SPECIFICATIONS.

SECTION 32 12 17 - HOT MIX ASPHALT PAVEMENT

PART 1 - GENERAL

1.01 REFERENCES
A. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS, 2014 EDITION.
B. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (ASSHTO)

1.02 SUBMITTALS
A. SUBMIT THE APPLICABLE DOCUMENTATION FOR REVIEW AND APPROVAL DEMONSTRATING COMPLIANCE WITH PROJECT REQUIREMENTS. SUBMIT MANUFACTURER'S CERTIFICATE OF COMPLIANCE AS APPLICABLE.
1. HMA AGGREGATE: GRADATION, SOURCE TEST RESULTS AS DEFINED IN SECTION 9_03.8 OF WSDOT STANDARD SPECIFICATIONS.
2. ASPHALT BINDER FOR HMA: TYPE AND PERFORMANCE GRADE FOR BINDER MATERIAL.
3. TACK COAT: TYPE AND GRADE OF ASPHALT.

4. HMA MIX DESIGN/JOB-MIX FORMULA (JMF): SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS SECTION 5-04.3(7)A1. THE MIX DESIGN AGGREGATE STRUCTURE AND ASPHALT BINDER CONTENT SHALL BE DETERMINED IN ACCORDANCE WITH WSDOT STANDARD OPERATING PROCEDURE 732 AND MEET THE REQUIREMENTS OF SECTIONS 9-03.8(2) AND 9-03.8(6). SUBMIT CERTIFICATES OF SPECIFICATION COMPLIANCE FOR MATERIALS TO BE USED. SUBMIT CERTIFICATION AND SUPPORTING DOCUMENTATION THAT INDICATES MIX DESIGN HAS BEEN PREVIOUSLY APPROVED BY WSDOT FOR A ROADWAY PROJECT WITHIN THE PAST 12 MONTHS OF WHEN PAVING OPERATIONS WILL COMMENCE. CONTACTOR SHALL DETERMINE ANTI-STRIP REQUIREMENTS FOR THE HMA, IF ANY, IN ACCORDANCE WITH WSDOT TEST METHOD T718. RECYCLED MATERIALS ARE NOT ALLOWED FOR HMA ON THIS PROJECT.

FORMULAS SHALL INDICATE PHYSICAL PROPERTIES OF THE MIXES AS SHOWN BY TESTS MADE BY A COMMERCIAL LABORATORY USING MATERIALS IDENTICAL TO THOSE TO BE PROVIDED ON THIS PROJECT. JMF FOR EACH MIXTURE SHALL BE IN EFFECT UNTIL MODIFIED IN WRITING BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. PROVIDE A NEW JMF FOR EACH SOURCE CHANGE. SUBMITTAL SHALL INCLUDE ALL TEST DATA DEMONSTRATING THE DESIGN MEETS THE REQUIREMENTS OF SECTIONS 9-03.8(2) AND 9-03.8(6) OF WSDOT STANDARD SPECIFICATIONS. JMF SUBMITTAL SHALL INCLUDE THE FOLLOWING.

- a. SOURCE AND PROPORTIONS, PERCENT BY WEIGHT, OF EACH INGREDIENT OF THE MIXTURE
b. CORRECT GRADATION, AND THE PERCENTAGES PASSING EACH SIZE SIEVE LISTED IN SECTION 9-03.8(6) OF WSDOT STANDARD SPECIFICATIONS
c. EFFECTIVE ASPHALT CONTENT AS PERCENT BY WEIGHT OF TOTAL MIX
d. PERCENT AIR VOIDS WITH TARGET AT 4.0% (SHALL BE BETWEEN 3.5 - 5.0 % IN LAB COMPACTED MIXTURES)
e. ASPHALT PERFORMANCE GRADE

1.03 QUALITY ASSURANCE
A. HMA TEST REQUIREMENTS SHALL COMPLY WITH THE WSDOT STANDARD SPECIFICATIONS SECTION 9-03.8(2). TEST METHODS FOR AGGREGATES SHALL COMPLY WITH THE WSDOT STANDARD SPECIFICATIONS SECTION 9-03.20.

B. INSPECTION AND TESTING: SAMPLING AND TESTING OF MATERIALS AND INSTALLATIONS SHALL BE PERFORMED BY THE CONTRACTOR AT NO COST TO THE PORT. TESTS, TESTING METHODS, AND RESULTS SHALL BE AS SPECIFIED IN THE PERTINENT SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS, AND THIS SPECIFICATION.

C. MATERIALS AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH AND SHALL MEET THE REQUIREMENTS OF THE PERTINENT SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS, INCLUDING SECTION 5-04.

D. LEGALLY DISPOSE OF ALL WASTE MATERIAL PRODUCED AS A RESULT OF THE CONTRACTOR'S OPERATIONS. THE COST OF DISPOSAL FOR ALL WASTE WILL BE CONSIDERED INCIDENTAL TO THE COST OF CONSTRUCTION AND NO ADDITIONAL PAYMENT WILL BE MADE FOR PERFORMING THIS WORK.

E. HMA COURSES SHALL NOT BE CONSTRUCTED WHEN THE UNDERLYING COURSE CONTAINS FREE SURFACE WATER. UNLESS OTHERWISE DIRECTED, ASPHALT COURSES SHALL NOT BE CONSTRUCTED WHEN THE AVERAGE SURFACE TEMPERATURES ARE LESS THAN THAT SPECIFIED IN THE TABLE INCLUDED IN SECTION 5-04.3(16) IN THE WSDOT STANDARD SPECIFICATIONS, OR AS RECOMMENDED BY THE BINDER MANUFACTURER.

F. TRUCK TICKETS FOR HMA SHALL CLEARLY STATE MIX NUMBER OR OTHER INFORMATION THAT CORRESPONDS DIRECTLY WITH SUBMITTAL DOCUMENTATION. IF TRUCK TICKET CANNOT BE RELATED BACK TO SUBMITTAL INFORMATION, ASPHALT WILL NOT BE ALLOWED TO BE PLACED AND CONTRACTOR WILL RETURN MATERIAL AT HIS OWN EXPENSE - NO EXCEPTIONS.

1.04 ENVIRONMENTAL CONDITIONS
A. WEATHER LIMITATIONS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(16). PLACE HMA ONLY DURING DRY WEATHER AND ON DRY SURFACES - NO EXCEPTION. HMA PLACED ON WET SURFACES AND/OR DURING RAINFALL ARE SUBJECT TO REMOVAL AND REPLACEMENT AT CONTRACTOR'S EXPENSE.

1.05 CONSTRUCTION EQUIPMENT
A. CALIBRATED EQUIPMENT, SUCH AS SCALES, BATCHING EQUIPMENT, SPREADERS AND SIMILAR EQUIPMENT, SHALL HAVE BEEN RECALIBRATED BY A CALIBRATION LABORATORY WITHIN 12 MONTHS OF COMMENCING WORK. EQUIPMENT SHALL ALSO BE IN ACCORDANCE WITH WSDOT SECTION 1-05.9.

1. MIXING PLANT
a. MIXING PLANT SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(1).

B. PAVING EQUIPMENT
1. HAULING EQUIPMENT
a. HAULING EQUIPMENT SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(2).
2. HOT MIX ASPHALT (HMA) PAVERS
a. PAVERS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(3).

C. ROLLERS
a. ROLLERS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(4).

PART 2 - PRODUCTS

2.01 GENERAL
A. MATERIALS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.2.

2.02 TACK COAT
A. TACK COAT SHALL BE EMULSIFIED ASPHALT, CSS-1, IN ACCORDANCE WITH WSDOT SECTION 9-02.1(6).

2.03 AGGREGATES
A. GENERAL REQUIREMENTS
1. GENERAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(1). AGGREGATES SHALL BE HMA CLASS 1/2 INCH.
B. TEST REQUIREMENTS
1. AGGREGATES FOR HMA SHALL BE IN ACCORDANCE WITH TEST REQUIREMENTS IN WSDOT SECTION 9-03.8(2).

C. GRADING
1. GRADING REQUIREMENTS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(3).

D. BLENDING SAND
1. BLENDING SAND SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(4).
E. MINERAL FILLER
1. MINERAL FILLER, WHEN USED, SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(5).
F. HMA PROPORTIONS OF MINERALS
1. PROPORTIONS OF MATERIALS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(6).
G. HMA TOLERANCES AND ADJUSTMENTS
1. JOB MIX TOLERANCES AND ADJUSTMENTS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-03.8(7).

2.04 ASPHALT CEMENT BINDER
A. ASPHALT BINDER SHALL CONFORM TO WSDOT SECTIONS 9-2.1(4) AND AASHTO MP 1A PERFORMANCE GRADE (PG) 64-22. TEST DATA INDICATING GRADE CERTIFICATION SHALL BE PROVIDED BY THE SUPPLIER AT THE TIME OF DELIVERY OF EACH LOAD TO THE MIX PLANT. COPIES OF THESE CERTIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER. THE SUPPLIER IS DEFINED AS THE LAST SOURCE OF ANY MODIFICATION TO THE BINDER.

2.05 HMA PAVEMENT CLASS
A. HMA PAVEMENT SHALL MEET ALL THE APPLICABLE WSDOT REQUIREMENTS FOR HMA CLASS 1/2 INCH. THE HMA SHALL BE DESIGNED FOR GREATER THAN 30M ESALS, MIN 100 GYRATIONS, IN ACCORDANCE WITH SECTION 9-03.8(2).

2.06 MIX DESIGN
A. THE MIX DESIGN WILL BE THE INITIAL JMF. THE ASPHALT MIX SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3(7)A.

1. ADJUSTMENTS TO JMF
a. THE JMF FOR EACH MIXTURE SHALL BE IN EFFECT UNTIL A NEW FORMULA IS APPROVED IN WRITING BY THE ENGINEER. SHOULD A CHANGE IN SOURCES OF ANY MATERIALS BE MADE, A NEW MIX DESIGN SHALL BE PERFORMED AND A NEW JMF APPROVED BEFORE THE NEW MATERIAL IS USED. THE CONTRACTOR WILL BE ALLOWED TO ADJUST THE JMF WITHIN THE LIMITS SPECIFIED BELOW TO OPTIMIZE MIX VOLUMETRIC PROPERTIES. ADJUSTMENTS TO THE JMF SHALL BE LIMITED TO PLUS OR MINUS 3 PERCENT ON THE 1/2 INCH, NO. 4, AND NO. 8 SIEVES; PLUS OR MINUS 1.0 PERCENT ON THE NO. 200 SIEVE; AND PLUS OR MINUS 0.40 PERCENT BINDER CONTENT. IF ADJUSTMENTS ARE NEEDED THAT EXCEED THESE LIMITS, A NEW MIX DESIGN SHALL BE DEVELOPED.

2.07 PROPORTIONS OF HMA MATERIALS
A. THE MATERIALS OF WHICH HMA PAVEMENT IS COMPOSED SHALL BE OF SUCH SIZES, GRADINGS, AND QUANTITIES THAT, WHEN PROPORTIONED AND MIXED TOGETHER, THEY WILL PRODUCE A WELL-GRADED MIXTURE WITHIN THE REQUIREMENTS LISTED IN THE WSDOT STANDARD SPECIFICATIONS
B. THE ACTUAL PROPORTIONS OF THE SEVERAL COMPONENTS TO BE USED IN THE PRODUCTION OF THE ASPHALT CONCRETE MIXTURE SHALL BE WITHIN THE WSDOT SPECIFIED LIMITS TO PROVIDE A PAVEMENT HAVING SURFACE TEXTURE, AIR VOIDS, VOIDS IN MINERAL AGGREGATE (VMA), AND VOIDS FILLED WITH ASPHALT (VFA) VALUES SATISFACTORY TO THE ENGINEER. THE PROPORTIONS SO FIXED SHALL BE CHANGED ONLY BY HIS ORDER.
C. SELECTION OF ASPHALT CONTENT SHALL ACHIEVE AN AIR VOID CONTENT BETWEEN 3.5 TO 5 PERCENT IN LABORATORY COMPACTED MIXTURES (TARGET IS 4%), WHICH IS PURPOSELY A MORE RESTRICTIVE RANGE THAN ALLOWED BY WSDOT. ASPHALT CONTENT SHOULD NOT BE ARBITRARILY INCREASED IN CONSTRUCTION TO FACILITATE COMPACTION, MINIMIZE SEGREGATION, OR FOR ANY OTHER REASON. DO NOT BEGIN PRODUCTION UNTIL THE ENGINEER HAS APPROVED MIX DESIGNS.

2.08 JOINT SEALER
A. JOINT SEALER SHALL BE IN ACCORDANCE WITH SECTION 9-04.2(1).

PART 3 - EXECUTION

3.01 GENERAL
A. HMA CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 5-04.3.

3.02 SURFACE PREPARATION
A. GENERAL: SURFACE PREPARATION SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS SECTION 5-04.3(5)A.
B. SOIL RESIDUAL HERBICIDE: APPLY SOIL RESIDUAL HERBICIDE IN UPLAND AREAS TO BE PAVED IN ACCORDANCE WITH WSDOT SECTION 5-04.3(5)D.

C. CLEAN PAVEMENT SURFACES IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS SECTION 5-04.3(5)A PRIOR TO APPLYING TACK COAT, PLACING HMA OVERLAY, ETC.
D. PRIOR TO PLACING HMA OVERLAY, APPLY TACK COAT OVER ASPHALT PAVEMENT AND/OR STRUCTURE SURFACES AS DIRECTED BY THE ENGINEER. THE APPLICATION RATE FOR TACK COAT WILL BE DETERMINED BY THE ENGINEER BUT SHALL NOT EXCEED 0.15 GALLON PER SQUARE YARD. AREAS TO RECEIVE TACK COAT MUST BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION.
E. APPLY JOINT SEALER TO THE EDGES OF NEW PAVING JOINTS, UTILITY STRUCTURES, ETC., AS DIRECTED BY THE ENGINEER.
F. PAVEMENT SAW CUTTING SHALL BE DONE AS INDICATED ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

3.03 PLACING HMA PAVEMENT
A. SPREADING AND FINISHING:
1. SPREADING AND FINISHING OF HMA SHALL BE IN ACCORDANCE WITH SECTION 5-04.3(9) OF WSDOT STANDARD SPECIFICATIONS.
B. COMPACTION OF MIXTURE:
1. COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 5-04.3(10) OF WSDOT STANDARD SPECIFICATIONS.

C. JOINTS:
1. JOINTS SHALL BE IN ACCORDANCE WITH SECTION 5-04.3(12) OF WSDOT STANDARD SPECIFICATIONS. VERTICAL CONTACT SURFACES OF PREVIOUSLY CONSTRUCTED SECTIONS OR EXISTING PAVEMENT SHALL BE PAINTED WITH A TACK COAT JUST BEFORE PLACING FRESH HMA.

D. LINE, GRADE, AND THICKNESS:
1. IN GENERAL, THE SLOPE OF THE FINISHED GRADE SHALL MATCH EXISTING CONDITIONS WHERE HMA OVERLAY IS TO BE PLACED, WITH THE EXCEPTION OF TRANSITION AREAS WHERE RAILROAD TRACK CROSSINGS ARE LOCATED AND AT THE NORTH AND SOUTH ENDS OF CONSTRUCTION. TRANSITION AREAS SHALL BE GRADUALLY SLOPED TO FINISH GRADE AS SHOWN ON DRAWINGS SUCH THAT OVERLAY MATCHES AND IS FLUSH WITH EXISTING GRADE AT PAVING BOUNDARIES.

E. HMA:
1. MIX, HANDLE, BATCH, HAUL, PLACE, ROLL, AND COMPACT HMA PAVEMENT IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS. PLACE THE MATERIAL TO THE DIMENSIONS INDICATED ON THE PLANS AND AS DIRECTED BY THE ENGINEER. MINIMUM COMPACTED LAYER THICKNESS SHALL BE 1.80 INCHES. THE MAXIMUM COMPACTED LAYER THICKNESS WHEN PLACED AS THE FINAL WEARING COURSE SHALL BE 3.6 INCHES. THE MAXIMUM COMPACTED LAYER THICKNESS WHEN PLACED AS ONE OF THE BASE LAYERS SHALL BE 4.2 INCHES. WHERE 6 INCHES TOTAL THICKNESS IS REQUIRED, PLACE (2) TWO 3 INCH COMPACTED LAYERS.

3.04 FIELD QUALITY CONTROL
A. CONTRACTOR SAMPLING OF PAVEMENT AND MIXTURE: TAKE FIELD SAMPLES FOR THICKNESS AND DENSITY OF THE COMPLETED PAVEMENTS. FURNISH TOOLS, LABOR, AND MATERIAL FOR SAMPLES AND SATISFACTORY REPLACEMENT OF PAVEMENT. TAKE SAMPLES AND TESTS AT NOT LESS THAN FREQUENCY SPECIFIED HEREINAFTER AND AT THE BEGINNING OF PLANT OPERATIONS, FOR EACH DAY'S WORK AS A MINIMUM, EACH CHANGE IN THE MIX OR EQUIPMENT, AND AS DIRECTED BY THE ENGINEER.
B. TESTING: PERFORM THE FOLLOWING TESTS:

1. COMPACTION/DENSITY: WSDOT SECTIONS 5-04.3(8)A AND 5-04.3(10)A AND B.
2. THICKNESS: DETERMINE THICKNESS OF CORE SAMPLES TAKEN FOR THE FIELD DENSITY TEST. SAMPLES SHALL BE TAKEN A MINIMUM OF ONE EVERY 500 SQUARE FEET OF PAVEMENT AREA OR AS DIRECTED BY ENGINEER. THE MAXIMUM ALLOWABLE DEFICIENCY AT ANY POINT SHALL NOT BE MORE THAN 1/4 INCH DIFFERENT THAN THE THICKNESS FOR THE INDICATED COURSE. AVERAGE THICKNESS OF COURSE OR OF COMBINED COURSES SHALL BE NOT LESS THAN THE INDICATED THICKNESS. WHERE A DEFICIENCY EXCEEDS THE SPECIFIED TOLERANCES, CORRECT EACH SUCH REPRESENTATIVE AREA OR AREAS BY REMOVING AND REPLACING THE DEFICIENT PAVEMENT. SKIN PATCHING AS A METHOD OF CORRECTING THIN/LOW AREAS IS PROHIBITED. ADDITIONAL SAMPLES SHALL BE TAKEN TO ESTABLISH THE EXTENT OF PAVEMENT HAVING DEFICIENT THICKNESS TO THE SATISFACTION OF THE ENGINEER, AND ADDITIONAL SAMPLES SHALL BE DONE AT NO ADDITIONAL COST TO THE PORT.

3. SMOOTHNESS: SURFACE SMOOTHNESS SHALL BE IN ACCORDANCE WITH SECTION 5-04.3(13) OF WSDOT STANDARD SPECIFICATIONS.
4. FINISH GRADES: FINISH GRADES OF EACH COURSE PLACED SHALL NOT VARY FROM THE PREVIOUS EXISTING GRADE PLUS HMA OVERLAY THICKNESS BY MORE THAN 1/4 INCH. FINISHED SURFACE SHALL BE TESTED TO ENSURE PROPER SURFACE RUNOFF WILL OCCUR WITHOUT PONDING TO THE SATISFACTION OF THE ENGINEER. WHERE UNACCEPTABLE LOW SPOTS ARE IDENTIFIED, CONTRACTOR SHALL REMOVE THE ASPHALT SECTION IN LOW AREA AND REPLACE WITH ADJUSTED GRADES TO ENCOURAGE POSITIVE DRAINAGE. PONDING AREAS CAUSED BY DEFICIENT PAVEMENT THICKNESS SHALL BE RECONSTRUCTED AT NO ADDITIONAL COST.

5. FINISH SURFACE TEXTURE OF WEARING COURSE: VISUALLY CHECK FINAL SURFACE TEXTURE FOR UNIFORMITY AND REASONABLE COMPACTNESS AND TIGHTNESS. FINAL WEARING COURSE WITH A SURFACE TEXTURE HAVING UNDESIRABLE IRREGULARITIES, SUCH AS SEGREGATION, CAVITIES, PULLS OR STREAKS, INDENTATIONS, RIPPLES, OR LACK OF UNIFORMITY SHALL BE REMOVED AND REPLACED.
C. DO NOT ALLOW VEHICULAR TRAFFIC OF ANY TYPE ON PAVEMENT FOR A MINIMUM OF 48 HOURS OR UNTIL SURFACE TEMPERATURE HAS COOLED TO AT LEAST 120 DEGREES F, WHICHEVER IS LONGEST. MEASURE SURFACE TEMPERATURE BY APPROVED THERMOMETERS OR OTHER SATISFACTORY METHODS.

Table with 5 columns: MARK, REVISION, DESCRIPTION, BY, APP., DATE



DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB

PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II
UPLAND CIVIL SPECIFICATIONS - SHEET 3

DRAWING NO. G-5
PROJECT NO. FAWAT-12-145
DATE: 10/8/14
SHEET NO. 5 OF 48

BID DOCUMENTS

SECTION 33 10 00 - WATER

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. THE EXTENT OF WORK IS INDICATED ON THE DRAWINGS. WORK INCLUDES THE REQUIREMENTS FOR PROVIDING THE UPLANDS PORTION OF THE WATER SYSTEM, INCLUDING TRENCH EXCAVATION, INSTALLATION OF NEW PIPING, PLACEMENT AND COMPACTION OF BEDDING MATERIAL, BACKFILL, INSTALLATION OF VALVES, BOLLARDS TO PROTECT EXISTING HYDRANTS, ETC., ALL IN CONFORMANCE WITH THESE SPECIFICATIONS AND THE DIMENSIONS AND SECTIONS INDICATED ON THE DRAWINGS OR WITHIN THE LINES AND GRADES ESTABLISHED BY THE ENGINEER.

1.02 QUALITY ASSURANCE

- A. QUALIFICATION OF WORKERS: EMPLOY THE SERVICES OF A QUALIFIED UTILITY CONTRACTOR, WHO WILL BE THOROUGHLY FAMILIAR WITH THE TYPE OF MATERIALS BEING INSTALLED AND THE BEST METHODS FOR THEIR INSTALLATION, AND WHO SHALL DIRECT ALL WORK PERFORMED UNDER THIS SECTION.
B. CODES AND STANDARDS: COMPLY WITH THE APPLICABLE PROVISIONS OF ALL PERTINENT CODES AND REGULATIONS. REFERENCES MADE HEREIN FOR MANUFACTURED MATERIALS, SUCH AS PIPE, FITTINGS, VALVES; REFER TO DESIGNATIONS FOR AMERICAN WATER WORKS ASSOCIATION (AWWA), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) OR TO STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, M41-10, 2014 EDITION, BY WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT STANDARD SPECIFICATIONS).
C. LOCAL AUTHORITY - WATER PURVEYOR: THE CONTRACTOR SHALL COORDINATE WITH AND COMPLY WITH THE APPLICABLE PROVISIONS REQUIRED BY THE WATER PURVEYOR ASSOCIATED WITH TIE-IN TO THE EXISTING WATER MAIN, NOTIFICATIONS, TESTING, FLUSHING, DISINFECTION, INSTALLATION, INSPECTION AND MATERIALS USED.
D. ALL WATER SYSTEM COMPONENTS UNLESS NOTED OTHERWISE SHALL BE RATED FOR A WORKING PRESSURE OF AT LEAST 125 PSI AND A TESTING PRESSURE OF 225 PSI, AND BE APPROVED FOR POTABLE USE BY NATIONAL SANITATION FOUNDATION (NSF).

1.03 SUBMITTALS

- A. PIPING, FITTINGS, VALVES, ACCESSORIES
1. MANUFACTURER'S CATALOG CUTS AND SHOP DRAWINGS TO DEMONSTRATE THAT ALL ITEMS CONFORM TO THE SPECIFICATIONS FOR THE FOLLOWING:
a) PIPE, FITTINGS AND ACCESSORIES
b) VALVES AND VALVE BOXES
c) WATER METER - AS REQUIRED BY WATER PURVEYOR
B. TESTING AND INSPECTION
1. SUBMIT TESTING AND INSPECTION PROCEDURES, INCLUDING INSPECTION REQUIREMENTS AND TESTING REQUIREMENTS TO BE PERFORMED. PROCEDURES SHALL INCLUDE PRESSURE TESTING, FLUSHING, AND DISINFECTION (CHLORINATION AND DECHLORINATION).

1.04 PRODUCT HANDLING

- A. HANDLE PIPE TO PREVENT DAMAGE TO THE PIPE, PIPE LINING, OR COATING. DAMAGE TO THE PIPE, PIPE LINING, OR COATING, IF ANY, SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER OR REPLACED AT THE CONTRACTOR'S EXPENSE.
B. AT TIMES WHEN PIPE LAYING IS NOT IN PROGRESS, CLOSE THE OPEN ENDS OF THE PIPE WITH A WATERTIGHT PLUG OR BY OTHER MEANS APPROVED BY THE ENGINEER TO ENSURE ABSOLUTE CLEANLINESS INSIDE THE PIPE.

PART 2 - PRODUCTS

2.01 PIPE, FITTINGS, AND APPURTENANCES

- A. GENERAL: MATERIALS SHALL BE IN ACCORDANCE WITH THE APPLICABLE REFERENCES WITHIN WSDOT STANDARD SPECIFICATIONS, SECTION 7-09.2.
B. BURIED UPLAND DUCTILE IRON PIPE & FITTINGS
1. DUCTILE IRON PIPE (DIP) AND FITTINGS SHALL BE CLASS 52. PIPE SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS SECTION 9-30.1(1). ALL PIPE SHALL BE NSF APPROVED FOR POTABLE USE.
2. PIPE SHALL HAVE AN ASPHALTIC EXTERIOR COATING AND A CEMENT MORTAR LINING IN ACCORDANCE WITH ANSI/AWWA C104. DUCTILE IRON PIPE SHALL BE ENCASED WITH POLYETHYLENE (PE) ENCASEMENT (POLY-WRAP) IN ACCORDANCE WITH AWWA C105, TUBE TYPE WITH 2-INCH WIDE ADHESIVE TAPE.
3. DUCTILE IRON FITTINGS SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS, SECTION 9-30.2(1). ALL FITTINGS SHALL BE NSF APPROVED FOR POTABLE USE.
C. TYPE K COPPER PIPE FOR BUILDING SERVICE LATERAL PIPING
1. COPPER PIPE SHALL BE ANNEALED, SEAMLESS, AND CONFORM TO THE REQUIREMENTS OF ASTM B88, TYPE K RATING FOR BELOW GROUND PIPE, AND SHALL MEET WSDOT SECTION 9-30.6(3). FITTINGS SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-30.6(4)A.
2. FITTINGS SHALL BE WROUGHT COPPER, CONFORMING TO ASTM B 75 FOR MATERIALS AND ANSI B16.22 FOR DIMENSIONS, OR CAST BRONZE, CONFORMING WITH ASTM B 62 FOR MATERIALS AND ANSI B16.18 FOR DIMENSIONS. SOLDER JOINTS WITH 95/5 SOLDER AND NAPP GAS.

2.02 VALVES

- A. GATE VALVES 3 INCHES AND LARGER FOR DUCTILE IRON PIPING
1. VALVE TYPE: RESILIENT SEAT VALVES, ANSI/AWWA C509, WSDOT STANDARD SPECIFICATIONS SECTION 9-30.3(1).
2. RATING: 200 PSI
3. OPENING: COUNTER CLOCKWISE
4. BODY: DUCTILE IRON EPOXY COATED
5. ENDS: FLANGED, MECHANICAL JOINT
6. STEM: NON-RISING HIGH STRENGTH BRONZE
7. STEM SEALS: O-RING
8. BODY-BONNET CONNECTIONS: BOLTED WITH CORROSION-RESISTANT MATERIAL.
9. MANUAL OPERATOR: 2-INCH SQUARE OPERATING NUT FOR BURIED VALVE BOX INSTALLATION WITH VALVE BOX
10. MANUFACTURER: M&H VALVE MODEL C509/CS15, CLOW VALVE MODEL 2639/2640, AMERICAN FLOW CONTROL SERIES 2500, OR APPROVED EQUAL.
B. BALL VALVES:
1. SIZE: TWO (2) INCHES AND SMALLER
2. MATERIAL: BRONZE
3. RATING: 600 PSI W.O.G.
4. BALL AND STEM: 316 STAINLESS STEEL
5. SEATS: REINFORCED TEFLON
6. CONNECTION: THREADED
7. MANUFACTURER: WATTS, SERIES FBV-3, OR APPROVED EQUAL.

2.03 VALVE BOX AND COVERS

- A. VALVE BOX SHALL BE IN ACCORDANCE WITH WSDOT SECTION 9-30.3(4). FRAME AND LID SHALL BE TESTED FOR ACCURACY OF FIT. CASTINGS AND EXTENSIONS SHALL BE HOT-DIPPED IN ASPHALTIC VARNISH ROYSTON ROSKOTE #612XM. MANUFACTURER: OLYMPIC FOUNDRY, OR APPROVED EQUAL.

PART 3 - EXECUTION

3.01 TRENCHING, BEDDING AND BACKFILL

- A. ALL TRENCHING / EARTHWORK RELATED TO WATER PIPING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 31 00 00 - EARTHWORK AND NOTES ON THE DRAWINGS. PROVIDE SHORING AS NECESSARY TO SUPPORT EXISTING FEATURES TO REMAIN IN PLACE.
B. BEDDING MATERIAL FOR WATER PIPE SHALL BE WASHED SAND.
a. IN THE EVENT THAT WATER IS ENCOUNTERED OR ACCUMULATES IN THE TRENCH, IT SHALL BE REMOVED DURING THE PIPE-LAYING OPERATION AND BE MAINTAINED IN A WATER-FREE CONDITION UNTIL THE ENDS OF THE PIPE ARE SEALED AND PROVISIONS ARE MADE TO PREVENT FLOATING OF THE PIPE. AT NO TIME ALLOW TRENCH WATER TO ENTER THE PIPE.

3.02 COORDINATION WITH OTHERS

- A. PRIOR TO STARTING WORK COORDINATE SHUT DOWNS, DEMOLITION, AND REOPENING WATER SUPPLY WITH THE PORT AND WATER PURVEYOR.

3.03 HANDLING THE PIPE

- A. DURING INSTALLATION, HANDLE THE PIPE AS SPECIFIED HEREIN. PIPE THAT HAS BECOME DAMAGED OR CONTAMINATED WITH DEBRIS SHALL BE REMOVED FROM THE TRENCH, CLEANED, AND REPAIRED AS REQUIRED AND RE-LAID.

3.04 LAYING PIPE

- A. GENERAL: CONSTRUCTION SHALL CONFORM TO MANUFACTURER INSTRUCTIONS AND REQUIREMENTS IN ACCORDANCE WITH WSDOT SECTION 7-09.3. DUCTILE IRON WATER LINES SHALL BE BURIED WITH A MINIMUM COVER OF 4 FEET. COPPER WATER LINES SHALL BE BURIED WITH A MINIMUM COVER OF 3 FEET.
B. RUBBER GASKET OF JOINT ON DUCTILE IRON PIPE:
1. CLEANING AND ASSEMBLING JOINT: CLEAN THE INSIDE OF THE BELL TO REMOVE OIL, GRIT, TAR (OTHER THAN STANDARD COATING) AND OTHER FOREIGN MATERIAL FROM THE JOINT. FLEX THE CIRCULAR RUBBER GASKET INWARD AND INSERT IN THE GASKET SEAT PROVIDED IN THE SOCKET, THEN RELEASE WITH THE GASKET FITTING OVER THE BEAD IN THE GASKET SEAT. APPLY A THIN FILM OF GASKET LUBRICANT TO THE INSIDE SURFACE OF THE GASKET. GASKET LUBRICANT SHALL BE AS SUPPLIED BY THE PIPE MANUFACTURER AND APPROVED BY THE ENGINEER.
2. CLEAN THE SPIGOT END OF THE PIPE AND ENTER INTO THE RUBBER GASKET IN THE SOCKET, USING CARE TO KEEP THE JOINT FROM CONTACTING THE GROUND. COMPLETE THE JOINT BY FORCING THE PLAIN END TO THE BOTTOM OF THE SOCKET USING A DEVICE APPROVED BY THE ENGINEER. PIPE THAT IS NOT FURNISHED WITH A DEPTH MARK SHALL BE MARKED BEFORE ASSEMBLY TO ENSURE THAT THE SPIGOT END IS INSERTED TO THE FULL DEPTH OF THE JOINT.

3.05 VALVE INSTALLATION

- A. GATE VALVES: INSPECT ALL GATE VALVES UPON DELIVERY IN THE FIELD TO ENSURE PROPER WORKING ORDER BEFORE INSTALLATION. SET AND JOINT TO THE PIPE IN THE MANNER SET FORTH IN THE AWWA STANDARDS FOR THE TYPE OF CONNECTION ENDS FURNISHED. INSPECT THE VALVES CAREFULLY FOR DAMAGE TO THE OUTER PROTECTIVE COATINGS. WHERE THE COATING HAS BEEN RUPTURED OR SCRAPED OFF, CLEAN THE DAMAGED AREA THOROUGHLY TO EXPOSE THE IRON BASE INSTALLATION, AND RECOAT THE CLEANED AREA WITH TWO OR MORE FIELD COATS OF QUIGLEY TRIPLE A-1 0, TRIPLE A-20, OR APPROVED EQUAL.
B. INSTALL VALVES IN THE POSITIONS SHOWN ON THE DRAWINGS AND PROVIDE WITH A VALVE BOX SO ARRANGED THAT NO LOAD OR SHOCK WILL BE TRANSMITTED TO THE VALVE. CENTER THE BOX OVER THE OPERATING NUT, AND SET THE BOX COVER FLUSH WITH THE FINISHED SURFACE.
C. AFTER INSTALLATION, ALL VALVES SHALL BE SUBJECTED TO THE FIELD TEST FOR PIPING. IF DEFECTS IN DESIGN, MATERIALS, OR WORKMANSHIP APPEAR DURING THESE TESTS, CORRECT SUCH DEFECTS WITH THE LEAST POSSIBLE DELAY AS DIRECTED BY THE ENGINEER.
D. VALVE BOXES SHALL BE POSITIONED DURING BACKFILL TO BE IN A PLUMB ALIGNMENT. VALVE BOX SHALL NOT REST DIRECTLY ON THE BODY OF THE VALVE, OR THE WATER MAIN. SET THE UPPER CASTING FLUSH WITH FINISH PAVEMENT AND ALIGN TO MATCH GRADE.

3.06 THRUST BLOCKS FOR BURIED DUCTILE IRON PIPE

- A. CONTRACTOR SHALL INSTALL CONCRETE THRUST BLOCKS AT ALL FITTINGS, SUCH AS BENDS, TEES, AND CAPS/PLUGS. THRUST BLOCKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NOTES ON THE DRAWINGS, WSDOT STANDARD PLAN B-90.40-00, AND WSDOT STANDARD SPECIFICATIONS SECTION 7-09.3(21). ASSUME SOIL IN EXCAVATION HAS AN ALLOWABLE BEARING PRESSURE OF 2,000 PSF FOR DESIGN OF THRUST BLOCKS UNLESS MATERIAL APPEARS SOFT, MUCKY, ETC.

3.07 COPPER PIPE

- A. FOLLOW INDUSTRY STANDARDS AND MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION OF BURIED COPPER PIPING. FOLLOW MANUFACTURER'S INSTRUCTIONS ON HANDLING, TRANSPORTING, AND STORAGE.

3.08 FIELD TESTS

- A. TEST ALL PIPING AND APPURTENANCES IN ACCORDANCE WITH THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS SECTION 7-09.3 (23).
B. TEST COPPER PIPE IN ACCORDANCE WITH PIPE AND FITTING MANUFACTURER'S REQUIREMENTS.

3.09 FLUSHING & DISINFECTION OF POTABLE WATER LINES

- A. BEFORE BEING PLACED IN SERVICE, FLUSH AND DISINFECT ALL NEW POTABLE WATER LINES IN ACCORDANCE WITH THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATIONS SECTION 7-09.3(24) AND 7-09.3(24)A. DISPOSE OF TEST WATER IN ACCORDANCE WITH APPLICABLE REGULATIONS.

SECTION 33 30 30 - SANITARY SEWER

PART 1 - GENERAL

1.01 REFERENCES

- A. THE PUBLICATIONS LISTED BELOW FORM A PART OF THIS SPECIFICATION SECTION TO THE EXTENT REFERENCED. THE PUBLICATIONS ARE REFERRED TO WITHIN THE TEXT BY THE BASIC DESIGNATION ONLY.
1. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) (2014) ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION

1.02 SYSTEM DESCRIPTION

- A. SANITARY SEWER GRAVITY PIPELINE - UPLANDS
1. PROVIDE NEW UPLANDS SANITARY SEWER GRAVITY PIPING FROM RESTROOM FACILITY TO EXISTING MANHOLE. INSTALL CLEANOUT JUST OUTSIDE THE RESTROOM STRUCTURE AND A MANHOLE WHERE A CHANGE IN HORIZONTAL ALIGNMENT IS REQUIRED.

1.03 SUBMITTALS

- A. SUBMIT PRODUCT INFORMATION ON PIPELINE, CLEANOUT, AND MANHOLE MATERIALS, INCLUDING MANUFACTURER'S STANDARD DRAWINGS AND CATALOG CUTS, SHOWING COMPLIANCE WITH THE REQUIREMENTS OF THIS SPECIFICATION.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. DELIVERY AND STORAGE
1. PIPING
a. INSPECT MATERIALS DELIVERED TO SITE FOR DAMAGE; STORE WITH MINIMUM OF HANDLING. STORE MATERIALS ON SITE IN ENCLOSURES OR UNDER PROTECTIVE COVERINGS. STORE PIPING, JOINTING MATERIALS, ETC., UNDER COVER OUT OF DIRECT SUNLIGHT. DO NOT STORE MATERIALS DIRECTLY ON THE GROUND. KEEP INSIDE OF PIPES AND FITTINGS FREE OF DIRT AND DEBRIS.
2. METAL ITEMS
a. CHECK UPON ARRIVAL; IDENTIFY AND SEGREGATE AS TO TYPES, FUNCTIONS, AND SIZES. STORE OFF THE GROUND IN A MANNER AFFORDING EASY ACCESSIBILITY AND NOT CAUSING EXCESSIVE RUSTING OR COATING WITH GREASE OR OTHER OBJECTIONABLE MATERIALS.
B. HANDLING
1. HANDLE PIPE, FITTINGS, AND OTHER ACCESSORIES IN SUCH MANNER AS TO ENSURE DELIVERY TO THE TRENCH IN SOUND UNDAMAGED CONDITION. CARRY, DO NOT DRAG, PIPE TO TRENCH.

PART 2 - PRODUCTS

2.01 PIPELINE MATERIALS

- A. PIPE SHALL BE OF THE SIZES INDICATED AND SHALL CONFORM TO THE RESPECTIVE SPECIFICATIONS AND OTHER REQUIREMENTS SPECIFIED BELOW. SUBMIT MANUFACTURER'S STANDARD DRAWINGS OR CATALOG CUTS.
B. POLYVINYL CHLORIDE (PVC) PIPE GRAVITY SEWER PIPE
MATERIALS SHALL BE IDENTIFIED BY MANUFACTURER AS BEING SUITABLE FOR SANITARY SEWER APPLICATIONS. PIPE AND FITTINGS SHALL BE SOLID WALL AND CONFORM TO WSDOT SECTION 9-05.12(1), ASTM D 3034, SDR 35. JOINTS FOR SOLID WALL PVC PIPE SHALL CONFORM TO ASTM D 3212 USING ELASTOMERIC GASKETS CONFORMING TO ASTM F 477.
C. PRECAST MANHOLE
MATERIALS REQUIRED FOR CONSTRUCTION OF MANHOLE SHALL CONFORM TO WSDOT SECTION 7-05.2. MANHOLES, INCLUDING FRAME AND LID, SHALL BE DESIGNED FOR HS-25 WHEEL LIVE LOAD. MANHOLE SHALL CONFORM TO WSDOT STANDARD PLAN B-15.60-01, TYPE 3. RING AND COVER SHALL CONFORM TO WSDOT STANDARD PLAN B-30.70-03.
D. CLEANOUT
MATERIALS REQUIRED FOR CONSTRUCTION OF CLEANOUT SHALL CONFORM TO WSDOT SECTION 7-19.2. CLEANOUT, INCLUDING FRAME AND LID, SHALL BE DESIGNED FOR HS-25 WHEEL LIVE LOAD. CLEANOUT SHALL CONFORM TO WSDOT STANDARD PLAN B-85.40-00.

PART 3 - EXECUTION

3.01 INSTALLATION OF PIPELINES AND APPURTENANT CONSTRUCTION

- A. GENERAL REQUIREMENTS FOR INSTALLATION OF PIPELINES WSDOT, SECTION 7-08 AND SECTION 7-17.3.
1. LOCATION
a. WORK COVERED BY THIS SECTION SHALL TERMINATE 5'-0" FROM FACE OF RESTROOM FACILITY. CURRENT UNIFORM PLUMBING CODE (UPC) APPLIES WITHIN 5'-0" OF RESTROOM. DO NOT LAY GRAVITY SANITARY SEWER LINE CLOSER HORIZONTALLY TO POTABLE WATER LINE THAN SHOWN ON DRAWINGS.
2. EARTHWORK
a. PERFORM TRENCHING / EARTHWORK OPERATIONS IN ACCORDANCE WITH SECTION 31 00 00 EARTHWORK.
3. CONNECTIONS TO EXISTING LINES
a. OBTAIN APPROVAL FROM THE PORT BEFORE MAKING CONNECTION TO EXISTING MANHOLE. CONDUCT WORK FOR MINIMAL TO NO INTERRUPTION OF SERVICE ON EXISTING LINE.

3.02 FIELD QUALITY CONTROL

- A. FIELD TESTS AND INSPECTIONS
1. THE ENGINEER WILL CONDUCT FIELD INSPECTIONS AND WITNESS FIELD TESTS SPECIFIED BY THE REFERENCED WSDOT SPECIFICATION. THE CONTRACTOR SHALL PERFORM FIELD TESTS AND PROVIDE LABOR, EQUIPMENT, AND INCIDENTALS REQUIRED FOR TESTING, EXCEPT THAT WATER AND ELECTRIC POWER NEEDED FOR FIELD TESTS WILL BE FURNISHED. BE ABLE TO PRODUCE EVIDENCE, WHEN REQUIRED, THAT EACH ITEM OF WORK HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.

BID DOCUMENTS

PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II
UPLAND CIVIL SPECIFICATIONS - SHEET 4

DRAWN BY MDB
DESIGN BY GDN
CHECK BY CSB
PROJ MGR CSB



BergerABAM
33301 9th Avenue South, Suite 300
Federal Way, Washington 98003-2600
(206) 431-2300 Fax: (206) 431-2250

DRAWING NO. G-6
PROJECT NO. FAWAT-12-145
DATE: 10/8/14
SHEET NO. 6 OF 48

Table with 5 columns: MARK, REVISION, DESCRIPTION, BY, APP., DATE. It contains a grid for tracking revisions.

SECTION 34 40 00 - STORM DRAINAGE

PART 1 - GENERAL

1.01 SUMMARY

- A. EXTENT OF WORK: THE LOCATION AND EXTENT OF STORM DRAINAGE WORK IS INDICATED ON THE DRAWINGS. THE WORK INCLUDES THE REQUIREMENTS FOR PROVIDING STORM SEWER PIPING, SURFACE TRENCHES, STORM DRAINAGE STRUCTURES, AND TREATMENT DEVICES.

1.02 REFERENCES

- A. WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 2014 EDITION.
- B. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO).
- C. AMERICAN WATER WORKS ASSOCIATION (AWWA).

1.03 QUALITY ASSURANCE:

- A. INSPECTION AND TESTING: NECESSARY TESTING AND INSPECTION WILL BE PERFORMED BY THE CONTRACTOR AND WITNESSED BY THE PORT. THE PORT MAY OBTAIN COPIES OF TEST RESULTS FROM THE CONTRACTOR AT NO COST.

1.04 SUBMITTALS

SUBMIT THE FOLLOWING FOR ACCEPTANCE:

- A. PRODUCT DATA: SUBMIT PRODUCT DATA SHOWING CONFORMANCE TO THE REQUIREMENTS OF THIS SPECIFICATION FOR ALL ITEMS INCLUDED IN THIS SECTION AND DRAINAGE FEATURES SHOWN ON DRAWINGS.
- B. SUBMIT MANUFACTURER'S INFORMATION SHOWING LOAD RATING FOR TRENCH DRAIN FRAME AND GRATE. TRENCH DRAIN FRAME AND GRATE SHALL BE RATED FOR AIRPORT PROOF LOADS OF 100,000 LB OR 200,000 LB PROOF LOAD.
- C. MANUFACTURER'S INSTALLATION INSTRUCTIONS TO BE FOLLOWED DURING CONSTRUCTION.
- D. SHOP DRAWINGS FOR ALL DRAINAGE TREATMENT STRUCTURES.

PART 2 - PRODUCTS

2.01 POLYVINYL CHLORIDE (PVC) PIPE GRAVITY STORM SEWER PIPE

- A. PIPE AND FITTINGS SHALL BE SOLID WALL AND CONFORM TO WSDOT SECTION 9-05.12(1) PIPE AND FITTINGS SHALL BE SOLID WALL AND CONFORM TO WSDOT SECTION 9-05.12(1), ASTM D 3034, SDR 35. JOINTS FOR SOLID WALL PVC PIPE SHALL CONFORM TO ASTM D 3212 USING ELASTOMERIC GASKETS CONFORMING TO ASTM F 477.

2.02 TRENCH DRAIN FRAME AND GRATE AT BOAT LAUNCH:

- A. FRAME AND GRATE SHALL HAVE HIGH STRENGTH AND DURABILITY, BE OF THE SAME MANUFACTURER, BE LOAD RATED FOR USE AT AIRPORTS AND/OR PORT FACILITIES AND MEET LOAD CLASS "F" BASED ON MODIFIED AASHTO M306 FOR AIRPORT PROOF LOAD OF 100,000 LB MINIMUM. PROOF LOAD INCLUDES A SAFETY FACTOR OF 2.5 AND AN IMPACT FACTOR OF 1.15. SUBMITTED MANUFACTURER'S LITERATURE DESCRIBING FRAME AND GRATE SHALL CLEARLY STATE CASTINGS ARE MANUFACTURED FOR USE AT AIRPORTS AND/OR PORT FACILITIES. GRATE SHALL BE BOLTED DOWN. FRAME AND GRATE SHALL BE NEENAH R-4993-DAB, TYPE T FRAME AND TYPE A GRATE, OR APPROVED EQUAL.
- B. BOLTED FRAMES AND GRATES SHALL BE SHIPPED ASSEMBLED. AT NO TIME SHALL UNITS BE DISASSEMBLED DURING INSTALLATION. ENSURE 3/16" GAP BETWEEN FRAME AND GRATE HAS NOT CHANGED IN TRANSPORT. FRAMES FROM THE GRATE MANUFACTURER SHALL BE USED INSTEAD OF TRADITIONAL ANGLE FRAMES TO PREVENT PROBLEMS ASSOCIATED WITH FRAMES BREAKING LOOSE FROM CONCRETE DUE TO BRAKING FORCES OF HEAVY VEHICLES, TORSIONAL FORCES DUE TO TURNING WHEELS, ETC.
- C. SIZE OF TRENCH DRAIN SHOWN ON DRAWINGS REPRESENTS WIDTH OF CONCRETE TRENCH OPENING BELOW GRATE, NOT OVERALL WIDTH OF GRATE. HEIGHT OF GRATE WHERE IT BEARS ON FRAME SHALL BE 2-INCHES.

2.03 ALL FRAME AND LID / GRATE CASTINGS:

- A. METAL CASTINGS SHALL CONFORM TO WSDOT SECTION 9-05.15.
- B. CASTINGS SHALL BE OF UNIFORM QUALITY, FREE FROM SAND HOLES, GAS HOLES, SHRINKAGE, CRACKS AND OTHER SURFACE DEFECTS. CASTINGS SHALL BE GROUND SMOOTH AND WELL CLEANED BY SHOT BLASTING. BEARING SURFACES BETWEEN FRAMES AND GRATES SHALL BE CAST OR MACHINED WITH SUCH PRECISION TO PREVENT ROCKING.
- C. CASTINGS SHALL BE IDENTIFIABLE AND SHOW, AT A MINIMUM, THE FOLLOWING: NAME OF THE PRODUCING FOUNDRY, ASTM MATERIAL DESIGNATION, AND PART NUMBER..

2.04 WATER QUALITY VAULT AND CATCHBASINS:

- A. WATER QUALITY CATCHBASINS AND WATER QUALITY VAULT SHALL BE OF SAME MANUFACTURER - OLDCASTLE STORMWATER SOLUTIONS (KRISTAR) PERK FILTER FOR WASHINGTON STATE DESIGNS, OR APPROVED EQUAL.
- B. VAULT AND CATCHBASIN UNITS SHALL BE CONSTRUCTED OF PRECAST CONCRETE WITH INTERNAL MEDIA FILLED FILTER CARTRIDGES FOR TREATMENT OF THE STORMWATER AND A HIGH FLOW BYPASS. STORMWATER DESIGN FOR THIS PROJECT IS PER WASHINGTON STATE DEPARTMENT OF ECOLOGY REQUIREMENTS. TREATMENT UNITS SHALL HAVE WASHINGTON STATE DEPARTMENT OF ECOLOGY "GENERAL USE LEVEL DESIGNATION" (GULD) FOR PROVIDING BASIC TREATMENT. ANY STEEL COMPONENTS SHALL BE GALVANIZED WITH AN ADDITIONAL POWDER COATING FOR MARINE APPLICATION AND DESIGN LIFE OF 50 YEARS. MINIMUM ACTUAL WATER QUALITY FLOWRATES FOR EACH UNIT LOCATION IS AS FOLLOWS:
 - 1. FIVE 18" CARTRIDGES IN VAULT NEAR BOAT LAUNCH:
 - 44 GPM (WQ) & 252 GPM (100 YR PEAK)
 - 2. TWO 18" CARTRIDGE WQCB STA 2+02 ALONG 28TH ST.:
 - 12 GPM (WQ) & 65 GPM (100 YR PEAK)
 - 3. SINGLE 18" CARTRIDGE WQCB STA 6+67 ALONG 28TH ST:
 - 7 GPM (WQ) & 35 GPM (100 YR PEAK)
 - 4. THREE 18" CARTRIDGE WQCB, STA 6+33 ALONG 28TH ST.:
 - 26 GPM (WQ) & 144 GPM (100 YR PEAK)
 - 5. (2) FOUR 18" CARTRIDGE WQCB'S NEAR HENDERSON:
 - 73 GPM (WQ) & 410 GPM (100 YR PEAK) FOR BOTH

PART 3 - EXECUTION

3.01 GENERAL:

- A. CONSTRUCTION REQUIREMENTS SHALL BE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATIONS, SECTION 7-04.3 AND 7-08.3.

3.02 EARTHWORK:

- A. EXCAVATION, BEDDING, AND BACKFILLING SHALL BE AS SPECIFIED IN SECTION 31 00 00 -EARTHWORK OF THESE SPECIFICATIONS.

3.03 SURVEY LINE AND GRADE:

- A. ALIGNMENT AND GRADE OF SLOPED GRAVITY DRAINAGE PIPING SHALL BE PERFORMED BY CONTRACTOR USING LASER BEAM (NOT TAUT LINE) AND METHODS DESCRIBED IN SECTION 7-08.3(2)A OF WSDOT STANDARD SPECIFICATIONS.

3.04 INSTALLATION OF UNDERGROUND PIPE:

FURNISH ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT FOR THE WORK AND PUMP, BAIL, OR OTHERWISE DEWATER THE TRENCH FOR THE DURATION OF THE CONSTRUCTION AND BACKFILL PERIOD.

- A. GENERAL: LAYING PIPE SHALL BE IN ACCORDANCE WITH SECTION 7-08.3(2) OF WSDOT STANDARD SPECIFICATIONS.
- B. PLACING: PLACE THE PIPE IN APPROPRIATE BEDDING GRADED TO CONFORM TO THE GRADES AND ALIGNMENT INDICATED ON THE DRAWINGS AND PREPARED AS SPECIFIED. ENSURE THAT THE PIPE HAS A FULL, SOLID BEARING ALONG ITS ENTIRE LENGTH. PROVIDE SMALL DEPRESSIONS FOR PIPE BELLS WHEN UTILIZED. MAKE MINOR ADJUSTMENTS TO LINE AND GRADE BY SCRAPING AWAY, OR FILLING IN WITH, BEDDING MATERIAL. DO NOT SUPPORT PIPES ON BLOCKS OR MOUNDS OF ANY NATURE.
- C. JOINTING: TAKE CARE TO PROPERLY ALIGN THE PIPE AND CLEAN THE BELL AND SPIGOT OR TONGUE OF THE PIPE. GASKETS MUST BE STRAIGHT, PROPERLY LUBRICATED AND WITHOUT TWIST. THE PIPE SHALL BE PARTIALLY SUPPORTED BY HAND, SLING, OR CRANE, AS REQUIRED, TO MINIMIZE LATERAL PRESSURE ON THE GASKET AND TO MAINTAIN CONCENTRICITY UNTIL THE PIPE HAS BEEN FORCED INTO FINAL LONGITUDINAL POSITION IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. PIPE HANDLING, AFTER THE GASKET HAS BEEN AFFIXED, SHALL BE CAREFULLY CONTROLLED TO AVOID BUMPING THE GASKET AND, THUS, KNOCKING IT OUT OF POSITION OR LOADING IT WITH DIRT OR OTHER FOREIGN MATERIAL. GASKETS SO DISTURBED SHALL BE REMOVED, CLEANED, RELUBRICATED, AND REPLACED BEFORE THE JOINT IS ATTEMPTED. APPLY SUFFICIENT RESTRAINT TO THE LINE TO ENSURE THAT THE JOINTS, ONCE HOME, ARE HELD SO BY TAMPING FILL MATERIAL UNDER AND ALONGSIDE THE PIPE. AT THE END OF THE DAY'S WORK, BLOCK THE LAST PIPE IN SUCH A MANNER AS MAY BE REQUIRED TO PREVENT CREEP DURING DOWN TIME.

3.05 INSTALLATION OF DRAINAGE STRUCTURES:

- A. FURNISH ALL NECESSARY LABOR, MATERIALS, AND EQUIPMENT FOR THE WORK AND PUMP, BAIL, OR OTHERWISE DEWATER THE TRENCH OR PIT FOR THE DURATION OF THE CONSTRUCTION AND BACKFILL PERIOD.
 - 1. GENERAL: INSTALLATION OF DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH SECTION 7-05.3 OF WSDOT STANDARD SPECIFICATIONS.
 - 2. ADDITIONAL REQUIREMENTS FOR DRAINAGE STRUCTURES:
 - a. PLACE DRAINAGE STRUCTURES AT THE ELEVATION AND LOCATION INDICATED ON THE DRAWINGS UPON THE APPROPRIATE BEDDING, PREPARED IN ACCORDANCE WITH SECTION 31 00 00 -EARTHWORK.
 - b. CAREFULLY PLACE PRECAST DRAINAGE STRUCTURES ON THE PREPARED BEDDING SO EACH IS SUPPORTED FULLY AND UNIFORMLY IN TRUE ALIGNMENT.
 - c. ALL LIFT HOLES AND ALL JOINTS BETWEEN PRECAST ELEMENTS SHALL BE THOROUGHLY WETTED AND THEN COMPLETELY FILLED WITH MORTAR, SMOOTHED AND POINTED BOTH INSIDE AND OUT, TO ENSURE WATER TIGHTNESS.
 - d. PLACE PRECAST SECTIONS AND ALIGN TO PROVIDE VERTICAL SIDES AND VERTICAL ALIGNMENT OF THE LADDER RUNGS. THE COMPLETED DRAINAGE STRUCTURE SHALL BE RIGID, TRUE TO DIMENSIONS AND WATERTIGHT.
 - e. CONSTRUCT DRAINAGE VAULT STRUCTURE TO PROVIDE ADJUSTMENT SPACE FOR SETTING COVER FASTENINGS TO A FINISHED GRADE. THE DRAINAGE STRUCTURE GRADE FURNISHED BY THE ENGINEER FOR CONSTRUCTION ON DRAWINGS INDICATES THE APPROXIMATE FINISH GRADE AND TOP OF GRATE / LID FOR DRAINAGE STRUCTURES. NO SEPARATE PAYMENT FOR FINAL ADJUSTMENT OF THE COVER CASTINGS FOR NEW CONSTRUCTION WILL BE MADE, AND ALL COSTS THEREOF WILL BE CONSIDERED AS INCIDENTAL AND BE INCLUDED IN THE PRICE FOR THE DRAINAGE STRUCTURE.
 - f. TOP SLAB OF DRAINAGE STRUCTURE VAULTS SHALL BE NOT MORE THAN 20-INCHES FROM FINISH GRADE. HEIGHT OF ADJUSTING RINGS SHALL NOT BE LESS THAN 2-INCHES AND NOT MORE THAN 16-INCHES.
 - g. PIPE CONNECTIONS: PLACE ALL PVC PIPES ENTERING OR LEAVING THE DRAINAGE STRUCTURES ON FIRMLY COMPACTED BEDDING, PARTICULARLY WITHIN THE AREA OF THE DRAINAGE STRUCTURE EXCAVATION, WHICH MAY BE DEEPER THAN THAT OF THE PIPE TRENCH AND PROVIDE A FLEXIBLE JOINT (BELL AND SPIGOT) WITHIN 12 INCHES OF THE MANHOLE STRUCTURE. TAKE SPECIAL CARE TO SEE THE OPENINGS THROUGH WHICH PIPES ENTER THE STRUCTURE ARE COMPLETELY AND FIRMLY RAMMED FULL OF MORTAR TO ENSURE WATER TIGHTNESS, AND END OF PIPE CUT TO BE FLUSH WITH INSIDE FACE OF CATCH BASIN STRUCTURES. LINK-SEAL OR EQUAL WATERTIGHT DEVICES MAY BE USED IN-LIEU OF MORTAR TO FILL VOID SPACE BETWEEN PIPE AND WALL OF STRUCTURE.
 - h. BACKFILL: HAND-PLACE BACKFILL AROUND THE DRAINAGE STRUCTURE, EXTENDING AT LEAST ONE PIPE LENGTH INTO EACH TRENCH AND TAMP WITH SELECT MATERIAL UP TO AN ELEVATION OF SIX INCHES ABOVE THE CROWN OF ALL ENTERING PIPES. CONFORM TO THE APPLICABLE PROVISIONS OF SECTION 31 00 00 - EARTHWORK. BACKFILL AROUND PIPE ON DOCK SHALL BE AS DETAILED ON THE DRAWINGS.

3.06 FIELD QUALITY CONTROL:

- A. CONTRACTOR SHALL PERFORM CLEANING AND TESTING OF THE STORM DRAINAGE SYSTEM IN ACCORDANCE WITH SECTION 7-04.3(1) AND OF WSDOT STANDARD SPECIFICATIONS.

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**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II**

UPLAND CIVIL SPECIFICATIONS - SHEET 5

BID DOCUMENTS

DRAWING NO. **G-7**
 PROJECT NO. FAWAT-12-145
 DATE: 10/8/14
 SHEET NO. 7 OF 48

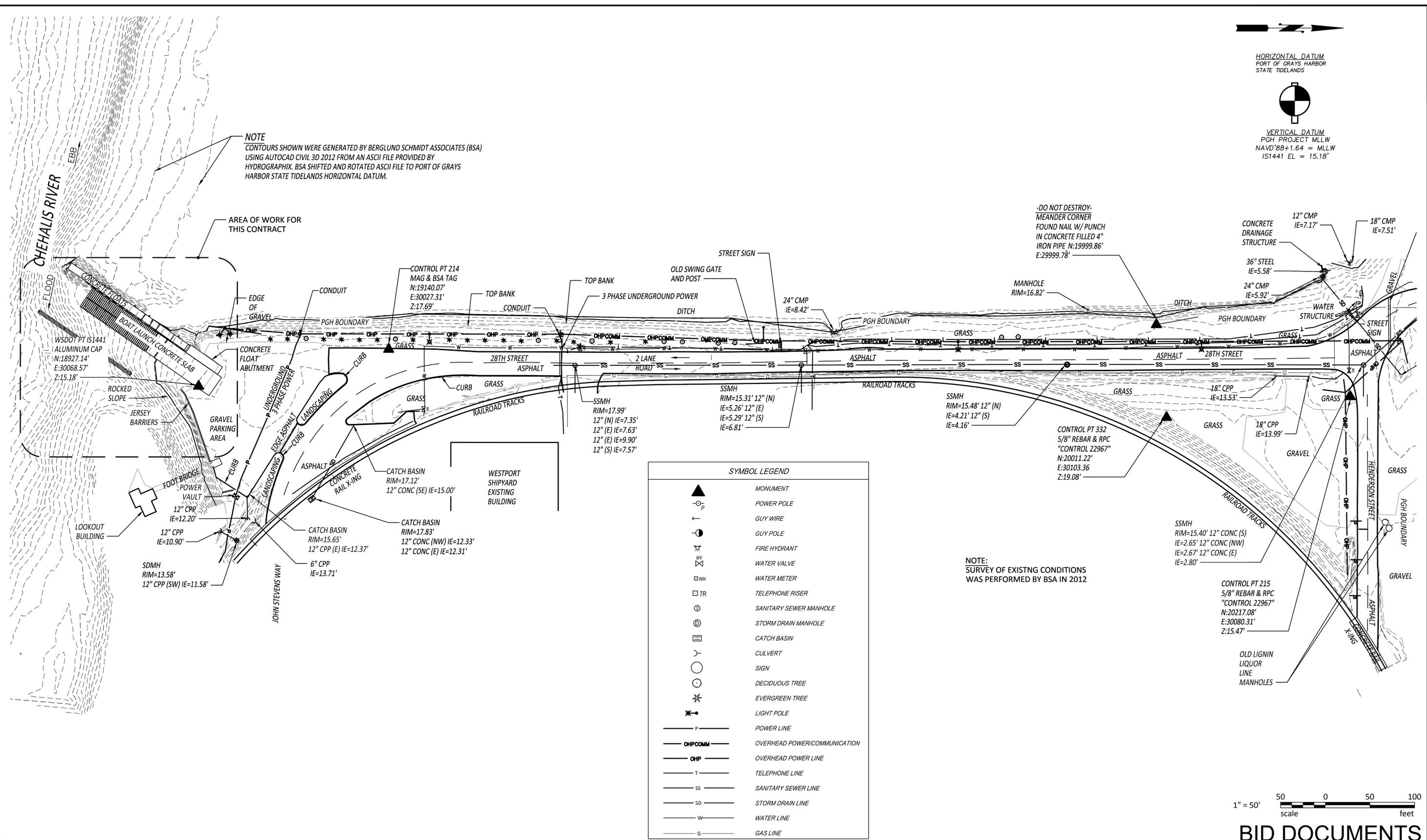


HORIZONTAL DATUM
PORT OF GRAYS HARBOR
STATE TIDELANDS



VERTICAL DATUM
PGH PROJECT MLLW
NAVD'88+1.64 = MLLW
IS1441 EL = 15.18'

NOTE
CONTOURS SHOWN WERE GENERATED BY BERGLUND SCHMIDT ASSOCIATES (BSA)
USING AUTOCAD CIVIL 3D 2012 FROM AN ASCII FILE PROVIDED BY
HYDROGRAPHIX. BSA SHIFTED AND ROTATED ASCII FILE TO PORT OF GRAYS
HARBOR STATE TIDELANDS HORIZONTAL DATUM.



SYMBOL LEGEND

	MONUMENT
	POWER POLE
	GUY WIRE
	GUY POLE
	FIRE HYDRANT
	WATER VALVE
	WATER METER
	TELEPHONE RISER
	SANITARY SEWER MANHOLE
	STORM DRAIN MANHOLE
	CATCH BASIN
	CULVERT
	SIGN
	DECIDUOUS TREE
	EVERGREEN TREE
	LIGHT POLE
	POWER LINE
	OVERHEAD POWER/COMMUNICATION
	OVERHEAD POWER LINE
	TELEPHONE LINE
	SANITARY SEWER LINE
	STORM DRAIN LINE
	WATER LINE
	GAS LINE

NOTE:
SURVEY OF EXISTING CONDITIONS
WAS PERFORMED BY BSA IN 2012



BID DOCUMENTS

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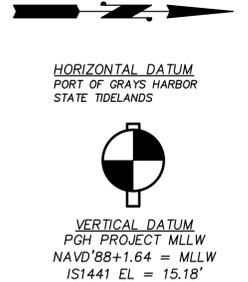
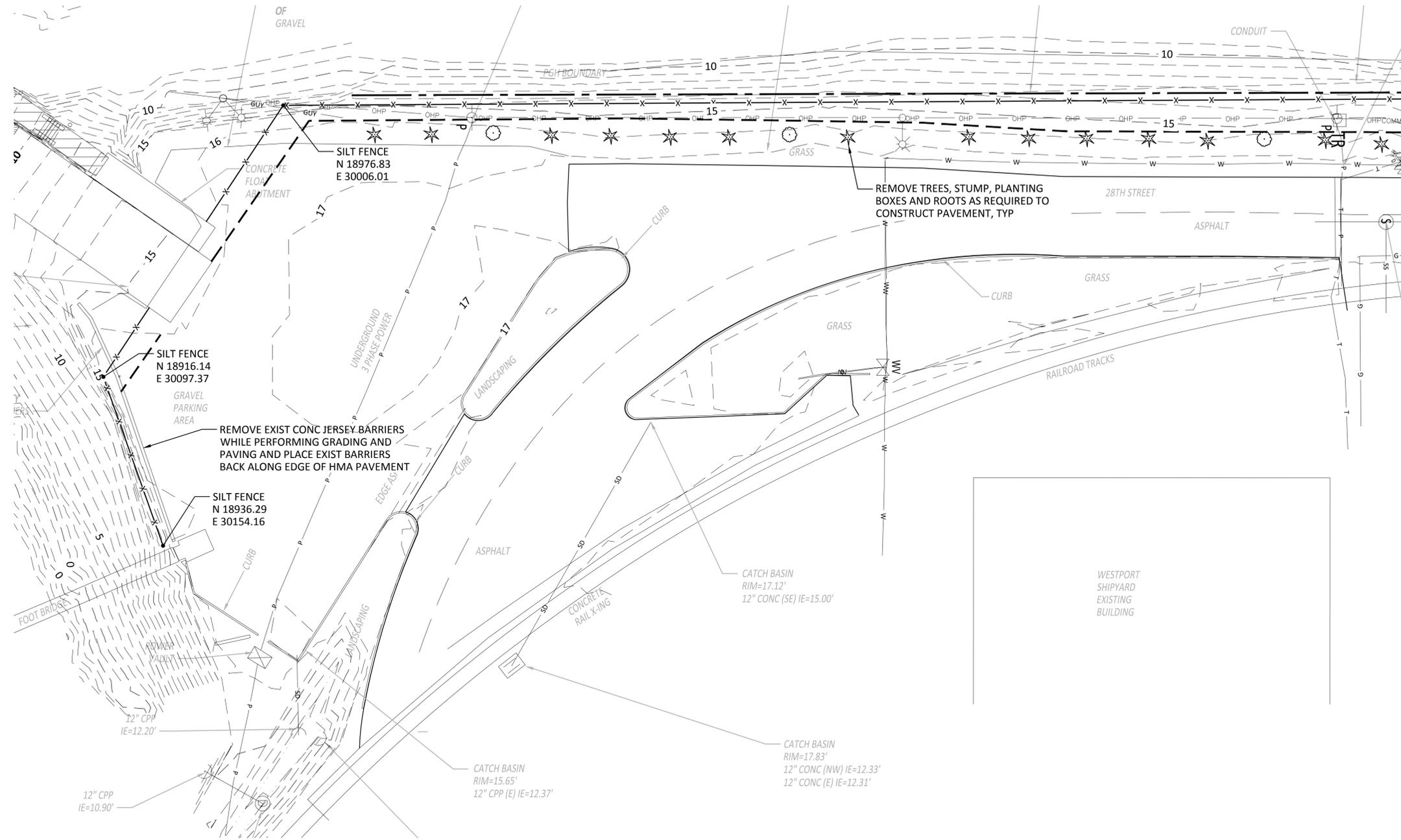
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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

EXISTING CONDITIONS

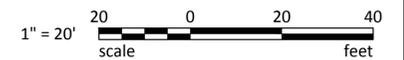
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PROJECT NO. **FAWAT-12-145**
DATE: **10/8/14**
SHEET NO. **8 OF 48**



LEGEND:

- x-x-x- SILT FENCE & LIMITS OF CLEARING AND GRUBBING
- - - - - PORT OF GRAYS HARBOR BOUNDARY

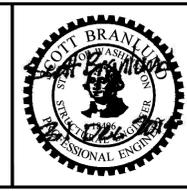
MATCH LINE SEE DWG C-3



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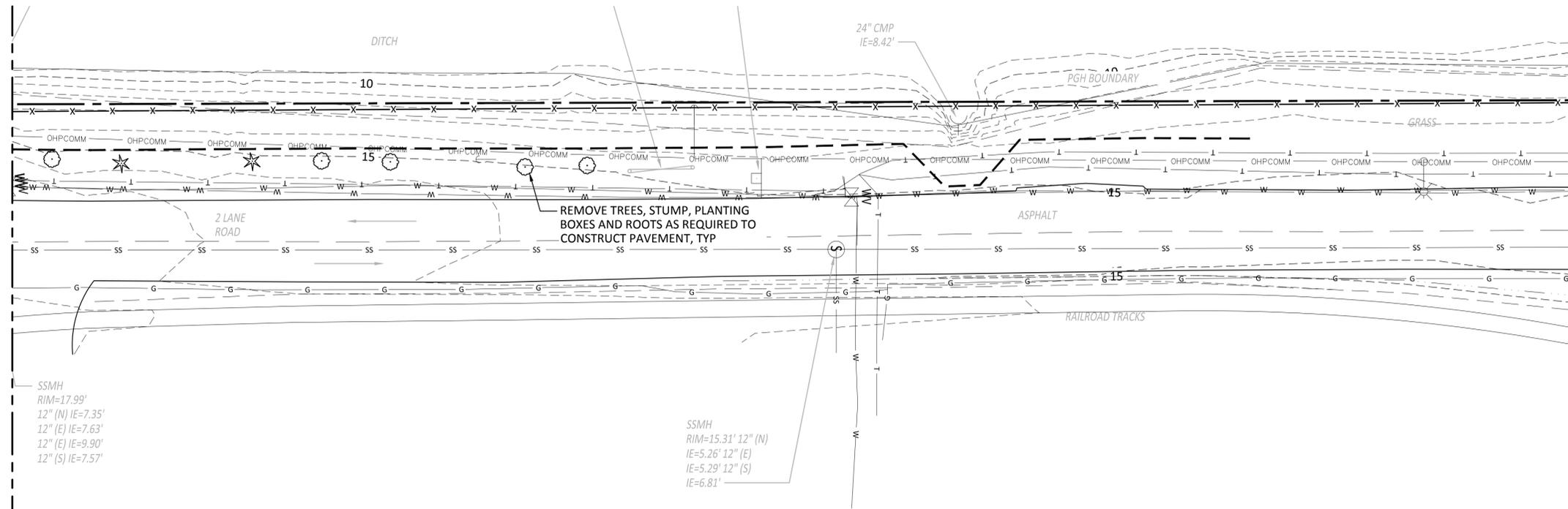
**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

TESC & DEMO PLAN - SHEET 1

DRAWING NO. **C-2**
PROJECT NO. **FAWAT-12-145**
DATE: **10/8/14**
SHEET NO. **9 OF 48**

MATCH LINE SEE DWG C-2

MATCH LINE SEE DWG C-4



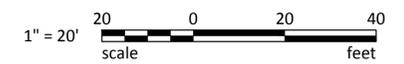
HORIZONTAL DATUM
PORT OF GRAYS HARBOR
STATE TIDELANDS



VERTICAL DATUM
PGH PROJECT MLLW
NAVD'88+1.64 = MLLW
IS1441 EL = 15.18'

LEGEND:

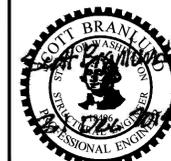
- x—x—x— SILT FENCE & LIMITS OF CLEARING AND GRUBBING
- — — — — PORT OF GRAYS HARBOR BOUNDARY



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CONSTRUCTION PHASE II**
TESC & DEMO PLAN - SHEET 2

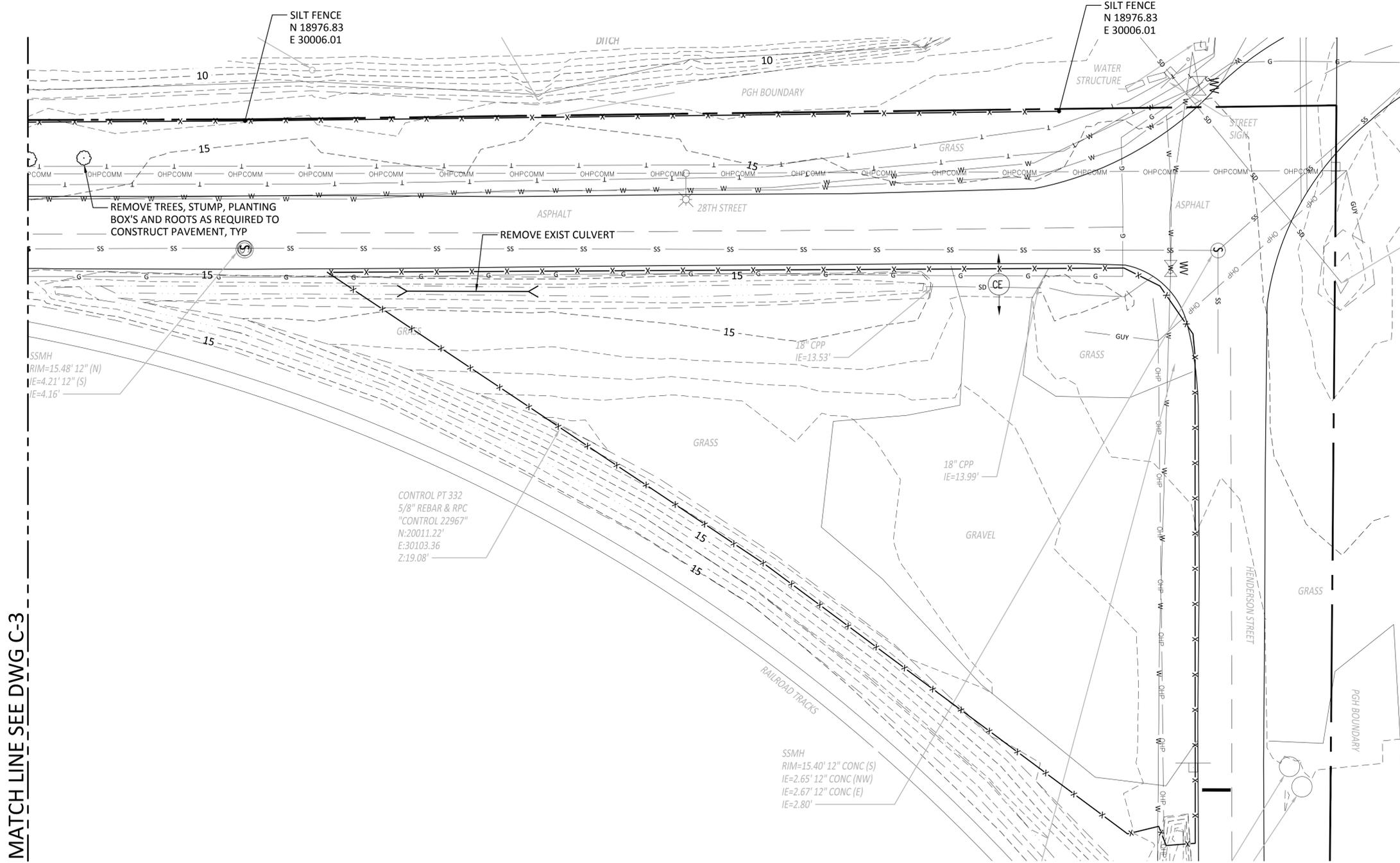
DRAWING NO. **C-3**
PROJECT NO. FAWAT-12-145
DATE: 10/8/14
SHEET NO. 10 OF 48



HORIZONTAL DATUM
PORT OF GRAYS HARBOR
STATE TIDELANDS



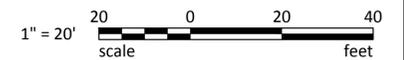
VERTICAL DATUM
PGH PROJECT MLLW
NAVD'88+1.64 = MLLW
IS1441 EL = 15.18'



MATCH LINE SEE DWG C-3

LEGEND:

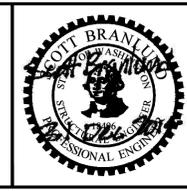
- SILT FENCE & LIMITS OF CLEARING AND GRUBBING
- PORT OF GRAYS HARBOR BOUNDARY
- STABILIZED CONSTRUCTION ENTRANCE



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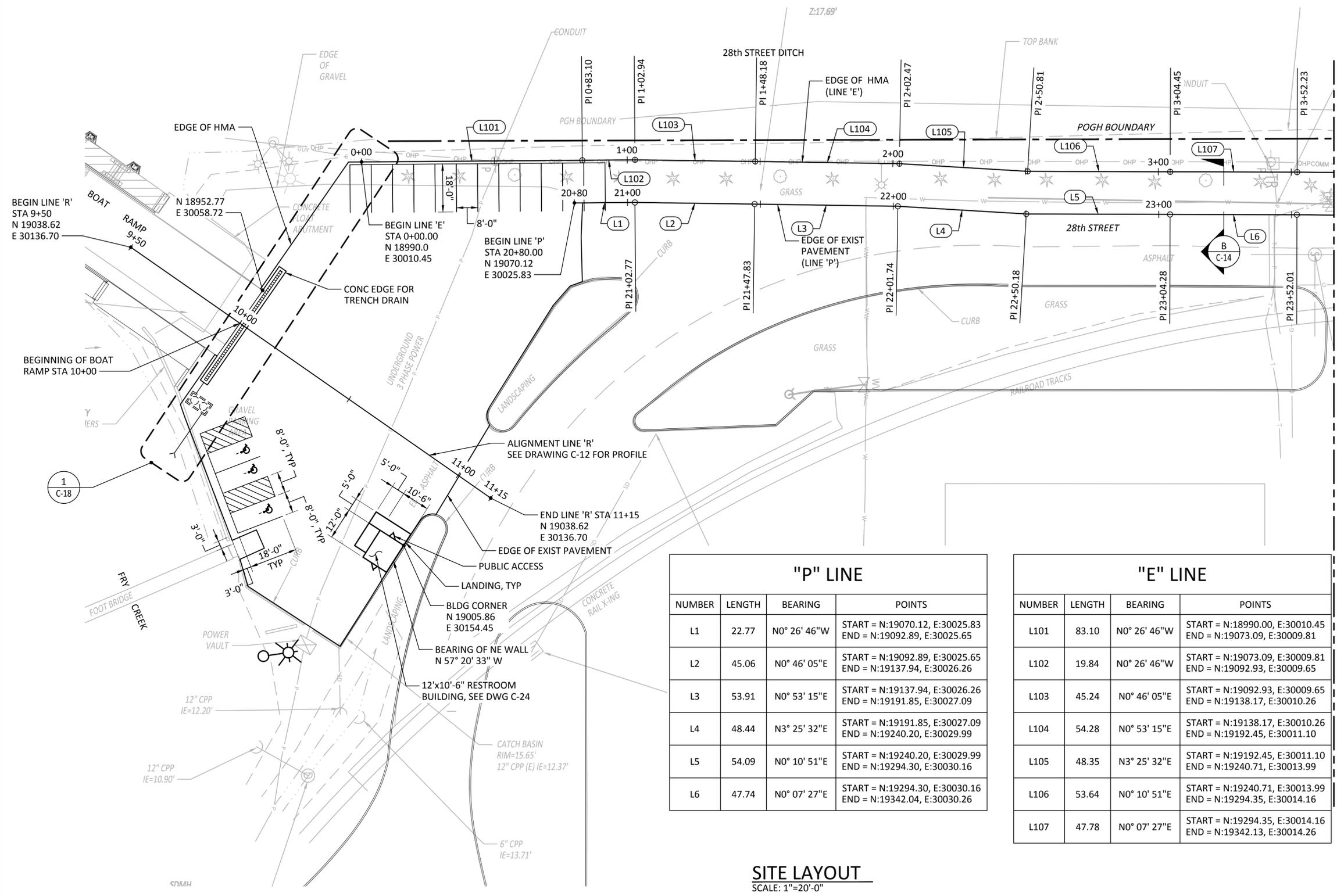


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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

TESC & DEMO PLAN - SHEET 3

DRAWING NO. **C-4**
PROJECT NO. FAWAT-12-145
DATE: 10/8/14
SHEET NO. 11 OF 48



NOTES:

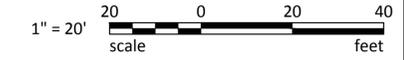
- ALIGNMENT LINE 'E' IS A 16'-0" PARALLEL OFFSET OF ALIGNMENT LINE 'P'.

"P" LINE			
NUMBER	LENGTH	BEARING	POINTS
L1	22.77	N0° 26' 46"W	START = N:19070.12, E:30025.83 END = N:19092.89, E:30025.65
L2	45.06	N0° 46' 05"E	START = N:19092.89, E:30025.65 END = N:19137.94, E:30026.26
L3	53.91	N0° 53' 15"E	START = N:19137.94, E:30026.26 END = N:19191.85, E:30027.09
L4	48.44	N3° 25' 32"E	START = N:19191.85, E:30027.09 END = N:19240.20, E:30029.99
L5	54.09	N0° 10' 51"E	START = N:19240.20, E:30029.99 END = N:19294.30, E:30030.16
L6	47.74	N0° 07' 27"E	START = N:19294.30, E:30030.16 END = N:19342.04, E:30030.26

"E" LINE			
NUMBER	LENGTH	BEARING	POINTS
L101	83.10	N0° 26' 46"W	START = N:18990.00, E:30010.45 END = N:19073.09, E:30009.81
L102	19.84	N0° 26' 46"W	START = N:19073.09, E:30009.81 END = N:19092.93, E:30009.65
L103	45.24	N0° 46' 05"E	START = N:19092.93, E:30009.65 END = N:19138.17, E:30010.26
L104	54.28	N0° 53' 15"E	START = N:19138.17, E:30010.26 END = N:19192.45, E:30011.10
L105	48.35	N3° 25' 32"E	START = N:19192.45, E:30011.10 END = N:19240.71, E:30013.99
L106	53.64	N0° 10' 51"E	START = N:19240.71, E:30013.99 END = N:19294.35, E:30014.16
L107	47.78	N0° 07' 27"E	START = N:19294.35, E:30014.16 END = N:19342.13, E:30014.26

SITE LAYOUT
SCALE: 1"=20'-0"

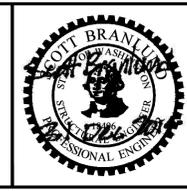
MATCH LINE SEE DWG C-6



BID DOCUMENTS

MARK	REVISION DESCRIPTION	BY	APP.	DATE

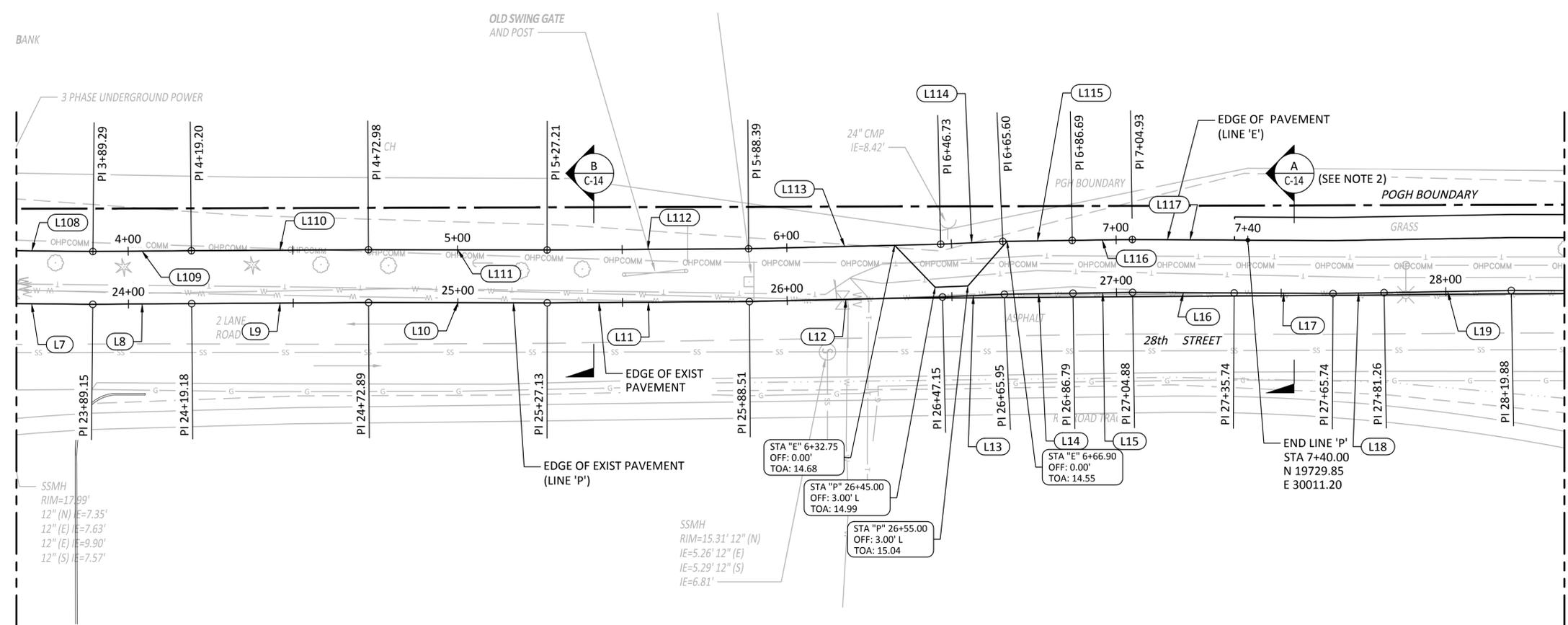
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PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II
 SITE LAYOUT - SHEET 1

DRAWING NO. **C-5**
 PROJECT NO. **FAWAT-12-145**
 DATE: **10/8/14**
 SHEET NO. **12 OF 48**



NOTES:

- SEE DRAWING C-5 FOR NOTES.
- SECTION A SHOWN ON DWG C-14 APPLIES TO WORK NORTH OF E-LINE STA 7+35.

MATCH LINE SEE DWG C-5

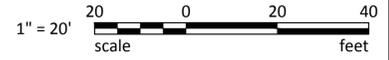
MATCH LINE SEE DWG C-7

"P" LINE			
NUMBER	LENGTH	BEARING	POINTS
L7	37.14	N0° 33' 54"E	START = N:19342.04, E:30030.26 END = N:19379.17, E:30030.63
L8	30.03	N0° 27' 37"W	START = N:19379.17, E:30030.63 END = N:19409.20, E:30030.39
L9	53.70	N0° 18' 51"W	START = N:19409.20, E:30030.39 END = N:19462.90, E:30030.09
L10	54.24	N0° 05' 02"E	START = N:19462.90, E:30030.09 END = N:19517.14, E:30030.17
L11	61.38	N0° 21' 40"W	START = N:19517.14, E:30030.17 END = N:19578.52, E:30029.78
L12	58.64	N1° 20' 40"W	START = N:19578.52, E:30029.78 END = N:19637.15, E:30028.41
L13	18.80	N2° 34' 45"W	START = N:19637.15, E:30028.41 END = N:19655.93, E:30027.56
L14	20.84	N0° 48' 46"W	START = N:19655.93, E:30027.56 END = N:19676.77, E:30027.27
L15	18.09	N0° 48' 46"W	START = N:19676.77, E:30027.27 END = N:19694.86, E:30027.01
L16	30.86	N0° 18' 55"E	START = N:19694.86, E:30027.01 END = N:19725.71, E:30027.18

"P" LINE			
NUMBER	LENGTH	BEARING	POINTS
L17	30.00	N0° 18' 55"E	START = N:19725.71, E:30027.18 END = N:19755.72, E:30027.34
L18	15.52	N0° 58' 28"W	START = N:19755.72, E:30027.34 END = N:19771.23, E:30027.08
L19	38.62	N0° 58' 28"W	START = N:19771.23, E:30027.08 END = N:19809.84, E:30026.42

"E" LINE			
NUMBER	LENGTH	BEARING	POINTS
L108	37.05	N0° 33' 54"E	START = N:19342.13, E:30014.26 END = N:19379.18, E:30014.63
L109	29.91	N0° 27' 37"W	START = N:19379.18, E:30014.63 END = N:19409.09, E:30014.39
L110	53.78	N0° 18' 51"W	START = N:19409.09, E:30014.39 END = N:19462.87, E:30014.09
L111	54.24	N0° 05' 02"E	START = N:19462.87, E:30014.09 END = N:19517.11, E:30014.17
L112	61.18	N0° 21' 40"W	START = N:19517.11, E:30014.17 END = N:19578.29, E:30013.79
L113	58.34	N1° 20' 40"W	START = N:19578.29, E:30013.79 END = N:19636.60, E:30012.42
L114	18.87	N2° 34' 45"W	START = N:19636.60, E:30012.42 END = N:19655.46, E:30011.57
L115	21.08	N0° 48' 46"W	START = N:19655.46, E:30011.57 END = N:19676.54, E:30011.27
L116	18.25	N0° 48' 46"W	START = N:19676.54, E:30011.27 END = N:19694.79, E:30011.01
L117	35.07	N0° 18' 55"E	START = N:19694.79, E:30011.01 END = N:19729.85, E:30011.20

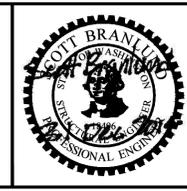
SITE LAYOUT
SCALE: 1"=20'-0"



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CONSTRUCTION PHASE II**

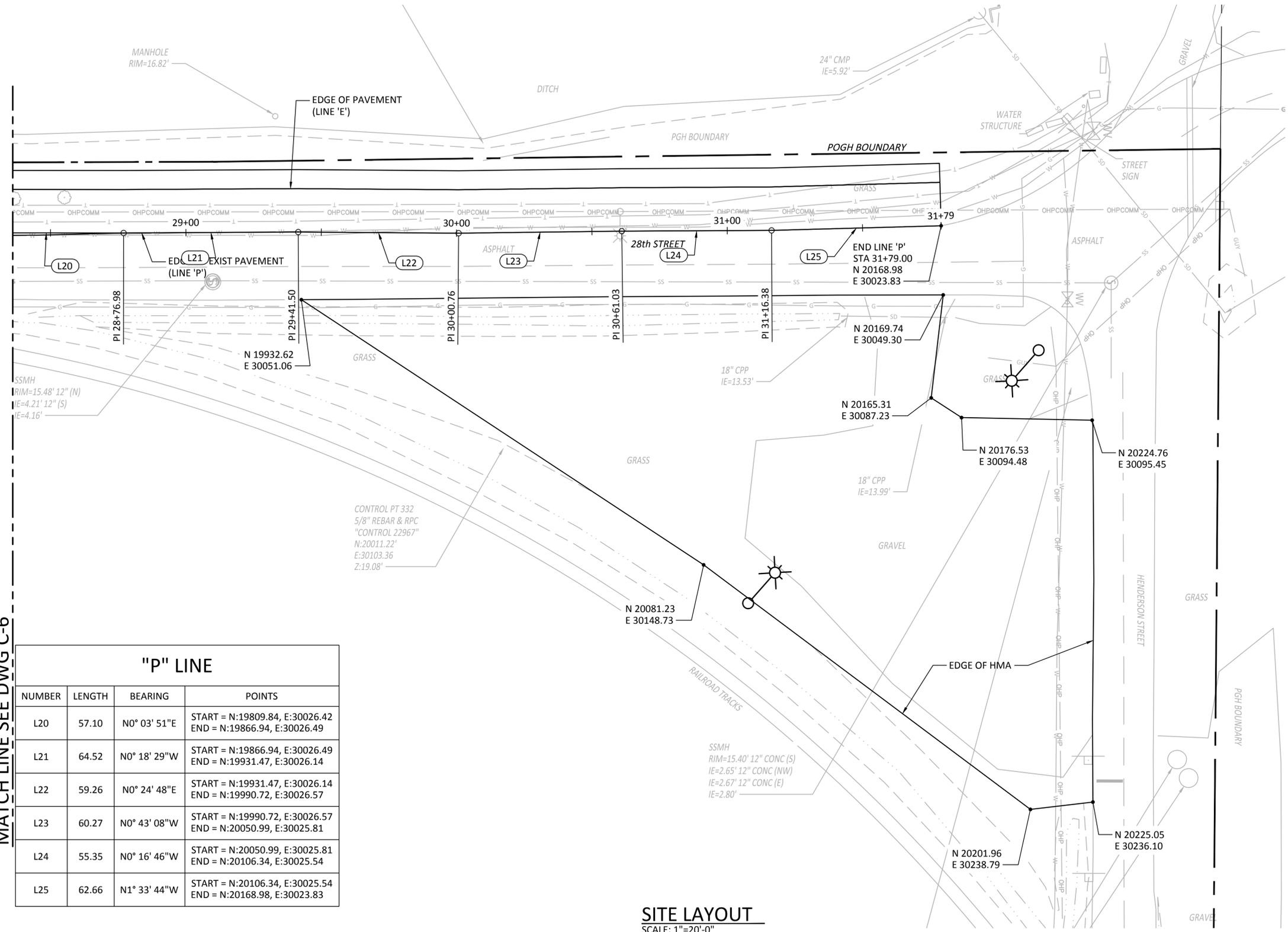
SITE LAYOUT - SHEET 2

DRAWING NO. **C-6**
PROJECT NO. **FAWAT-12-145**
DATE: **10/8/14**
SHEET NO. **13 OF 48**



NOTES:

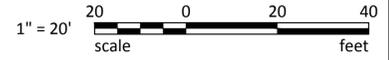
- SEE DRAWING C-5 FOR NOTES.



MATCH LINE SEE DWG C-6

"P" LINE			
NUMBER	LENGTH	BEARING	POINTS
L20	57.10	N0° 03' 51"E	START = N:19809.84, E:30026.42 END = N:19866.94, E:30026.49
L21	64.52	N0° 18' 29"W	START = N:19866.94, E:30026.49 END = N:19931.47, E:30026.14
L22	59.26	N0° 24' 48"E	START = N:19931.47, E:30026.14 END = N:19990.72, E:30026.57
L23	60.27	N0° 43' 08"W	START = N:19990.72, E:30026.57 END = N:20050.99, E:30025.81
L24	55.35	N0° 16' 46"W	START = N:20050.99, E:30025.81 END = N:20106.34, E:30025.54
L25	62.66	N1° 33' 44"W	START = N:20106.34, E:30025.54 END = N:20168.98, E:30023.83

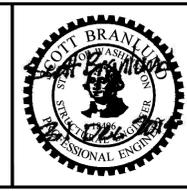
SITE LAYOUT
SCALE: 1"=20'-0"



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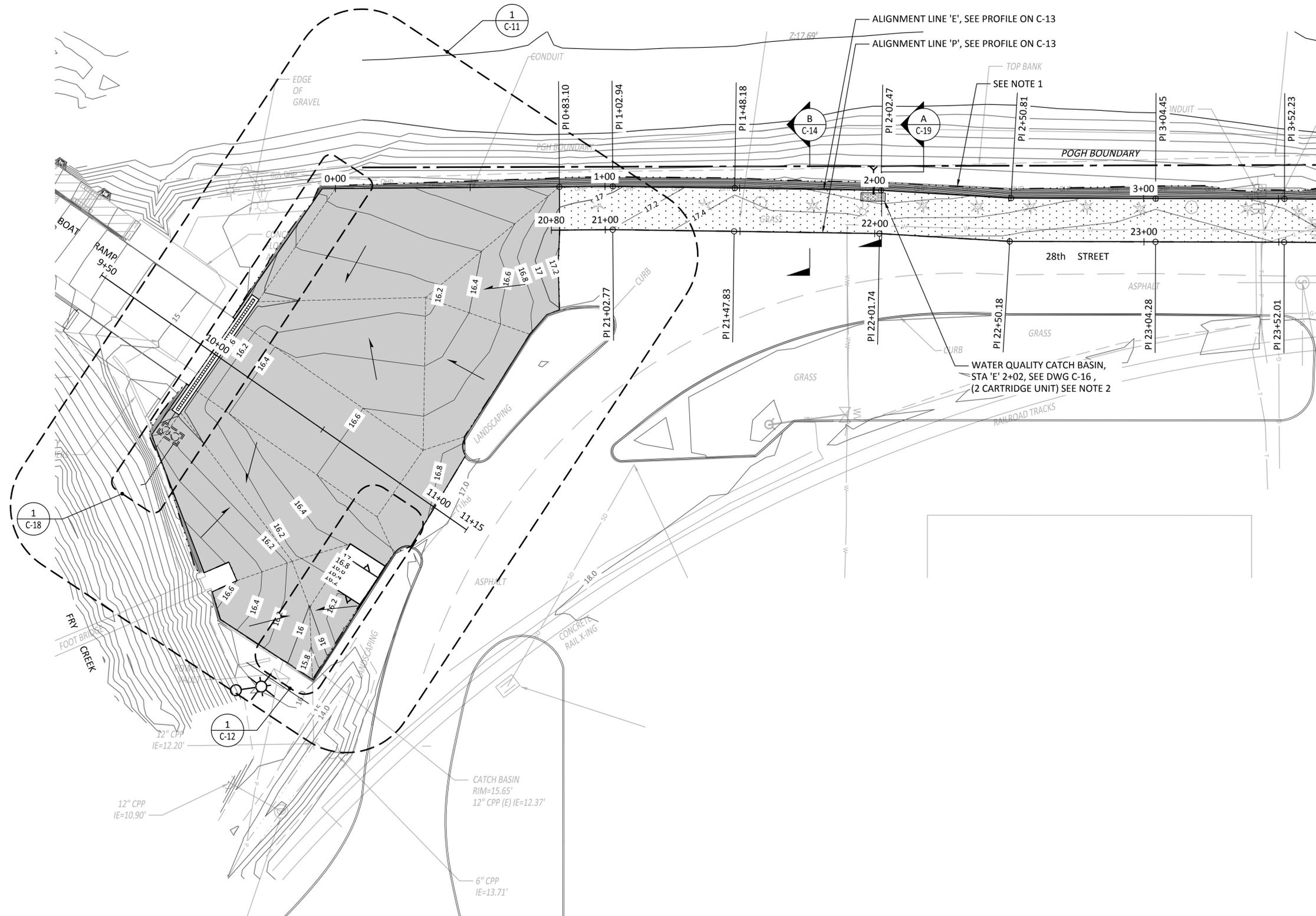


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**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

SITE LAYOUT - SHEET 3

DRAWING NO. **C-7**
PROJECT NO. **FAWAT-12-145**
DATE: **10/8/14**
SHEET NO. **14 OF 48**



GRADING & DRAINAGE PLAN
SCALE: 1"=20'-0"



NOTES:

- EXISTING CONTOURS ARE SHOWN EVERY 1'-0". CONTOURS IN DEVELOPED AREAS ARE SHOWN EVERY 0.20' TO CLARIFY GRADING IN RELATIVELY FLAT AREAS. TIGHTLY SPACED 0.2' CONTOURS ARE NOT SHOWN FOR FILL SLOPE WEST OF HMA PAVEMENT EDGE ALONG 28TH STREET.
- GRATING OF WQCB SHALL BE AT LOW POINT OF PROFILE.

LEGEND

- GRADE BREAK LINES, VALLEY LINES, RIDGE LINES
- (EL 16.78) REFERENCE ELEVATION (EXISTING FEATURES)
- EL 16.12 FINISH GRADE
- TOE OF FILL SLOPE (GRADING BOUNDARY FOR FILL AREAS)
- HMA NEAR BOAT LAUNCH
- HMA FOR PARKING ALONG 28th ST AND NEAR HENDERSON ST.

MATCH LINE SEE DWG C-9

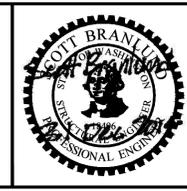


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DRAWN BY MDB
DESIGN BY VHN
CHECK BY CSB
PROJ MGR CSB

**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**

GRADING & DRAINAGE PLAN - SHEET 1

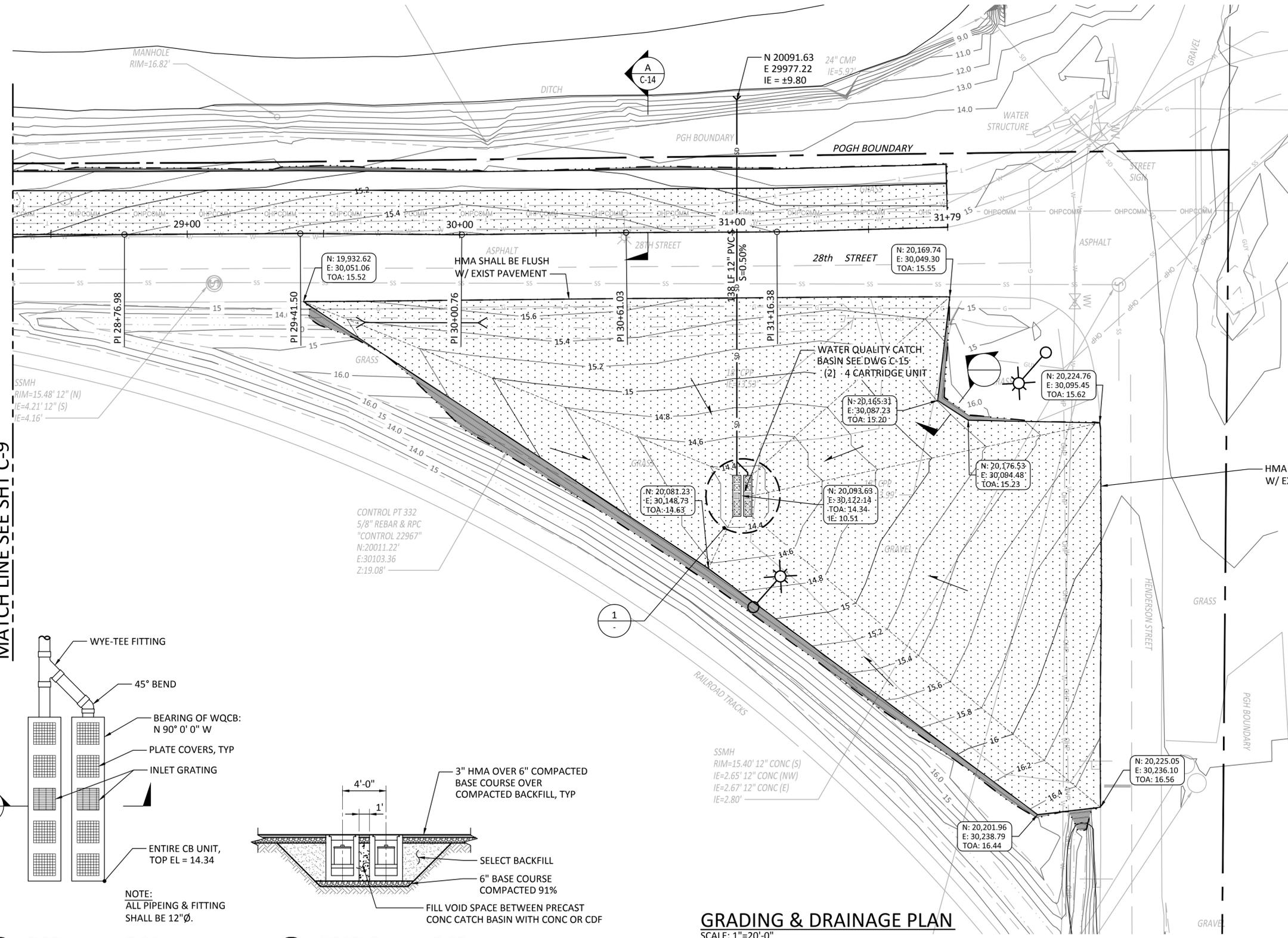
DRAWING NO. **C-8**
PROJECT NO. **FAWAT-12-145**
DATE: **10/8/14**
SHEET NO. **15 OF 48**



NOTES:

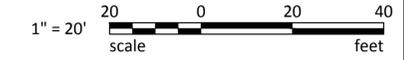
- EXISTING CONTOURS ARE SHOWN EVERY 1'-0". CONTOURS IN DEVELOPED AREAS ARE SHOWN EVERY 0.20' TO CLARIFY GRADING IN RELATIVELY FLAT AREAS. TIGHTLY SPACED 0.2' CONTOURS ARE NOT SHOWN FOR FILL SLOPE WEST OF HMA PAVEMENT EDGE ALONG 28TH STREET.
- WATER QUALITY CATCH BASINS SHALL EACH HAVE (4) 18" TALL CARTRIDGES.

MATCH LINE SEE SHT C-9

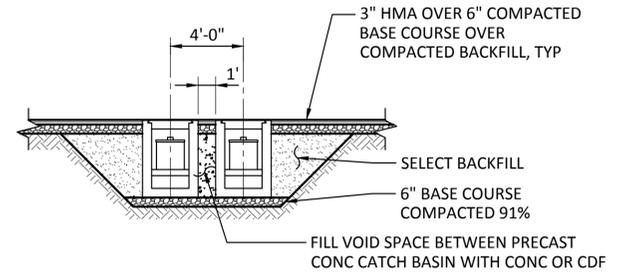
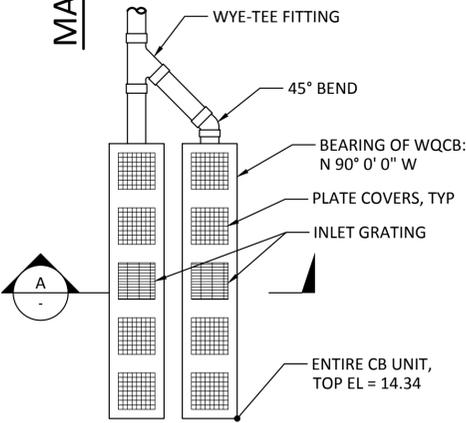


LEGEND

- GRADE BREAK LINES, VALLEY LINES, RIDGE LINES
- (EL 16.78) REFERENCE ELEVATION (EXISTING FEATURES)
- EL 16.12 FINISH GRADE
- TOE OF FILL SLOPE (GRADING BOUNDARY FOR FILL AREAS)
- HMA FOR PARKING ALONG 28th ST AND NEAR HENDERSON ST.
- SD STORM DRAINAGE PIPING
- WATER QUALITY CATCH BASIN



BID DOCUMENTS



GRADING & DRAINAGE PLAN
SCALE: 1"=20'-0"

MARK	REVISION DESCRIPTION	BY	APP.	DATE

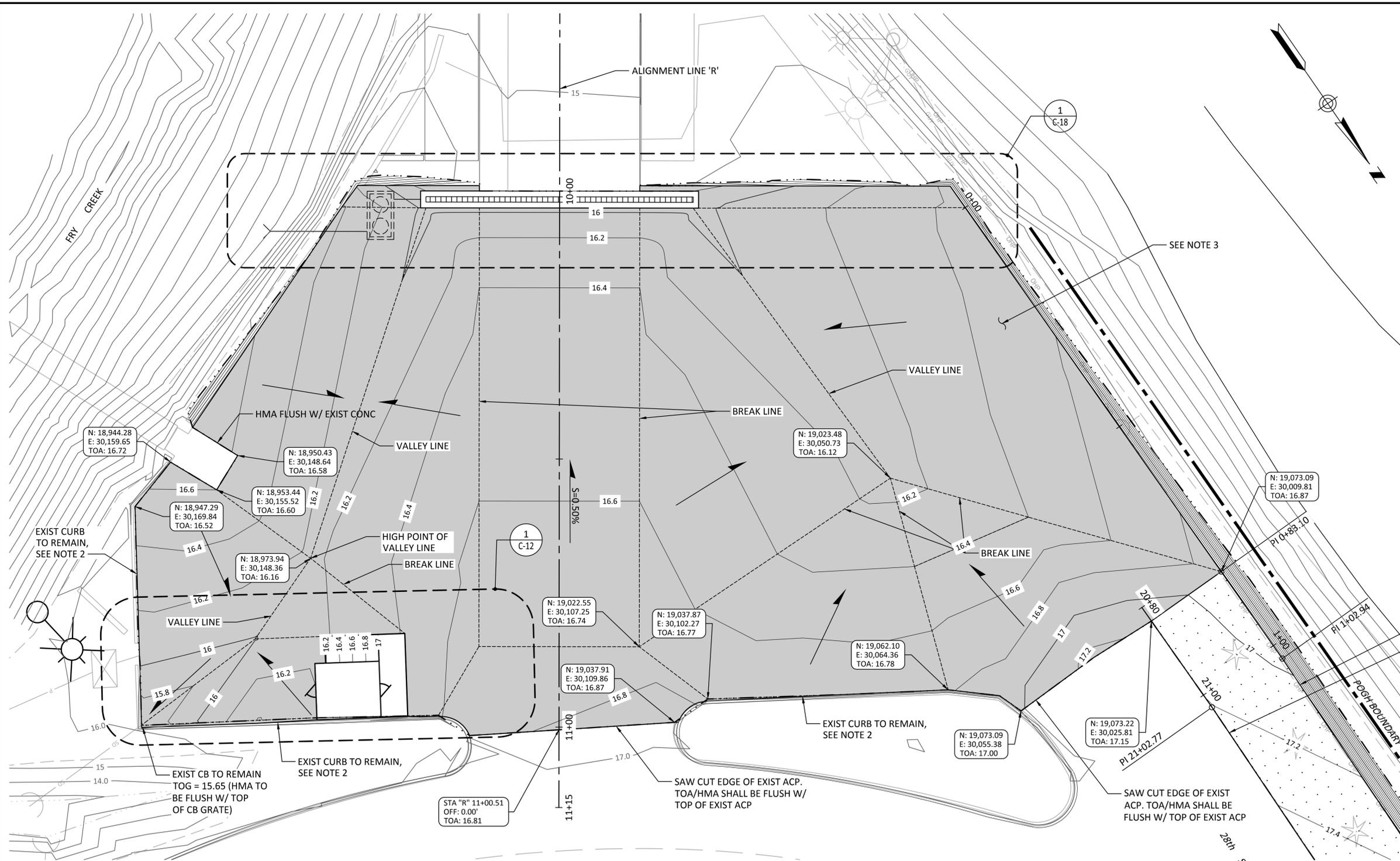
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DRAWN BY **MDB**
DESIGN BY **VHN**
CHECK BY **CSB**
PROJ MGR **CSB**

**PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II**
GRADING & DRAINAGE PLAN - SHEET 3

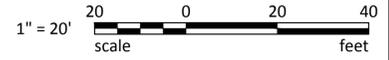
DRAWING NO. **C-10**
PROJECT NO. **FAWAT-12-145**
DATE: **10/8/14**
SHEET NO. **17 OF 48**



NOTES:

1. CONTRACTOR SHALL HOLD BREAK LINES & SPOT ELEVATIONS SHOWN ON PLAN TO DEVELOP INTENDED GRADING LAYOUT.
2. TOA SHALL MATCH EXIST GRADE AT EXISTING CURB LINES & BE PLACED UP TO FACE OF EXIST CURB. MIN CURB HEIGHT AFTER PLACEMENT OF HMA SHALL BE 4".
3. SHADED AREA REPRESENTS PAVEMENT AT BOAT LAUNCH.

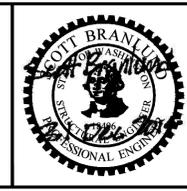
1 ENLARGED GRADING & DRAINAGE PLAN
 C-5-C-8 SCALE: 1"=10'-0"



BID DOCUMENTS

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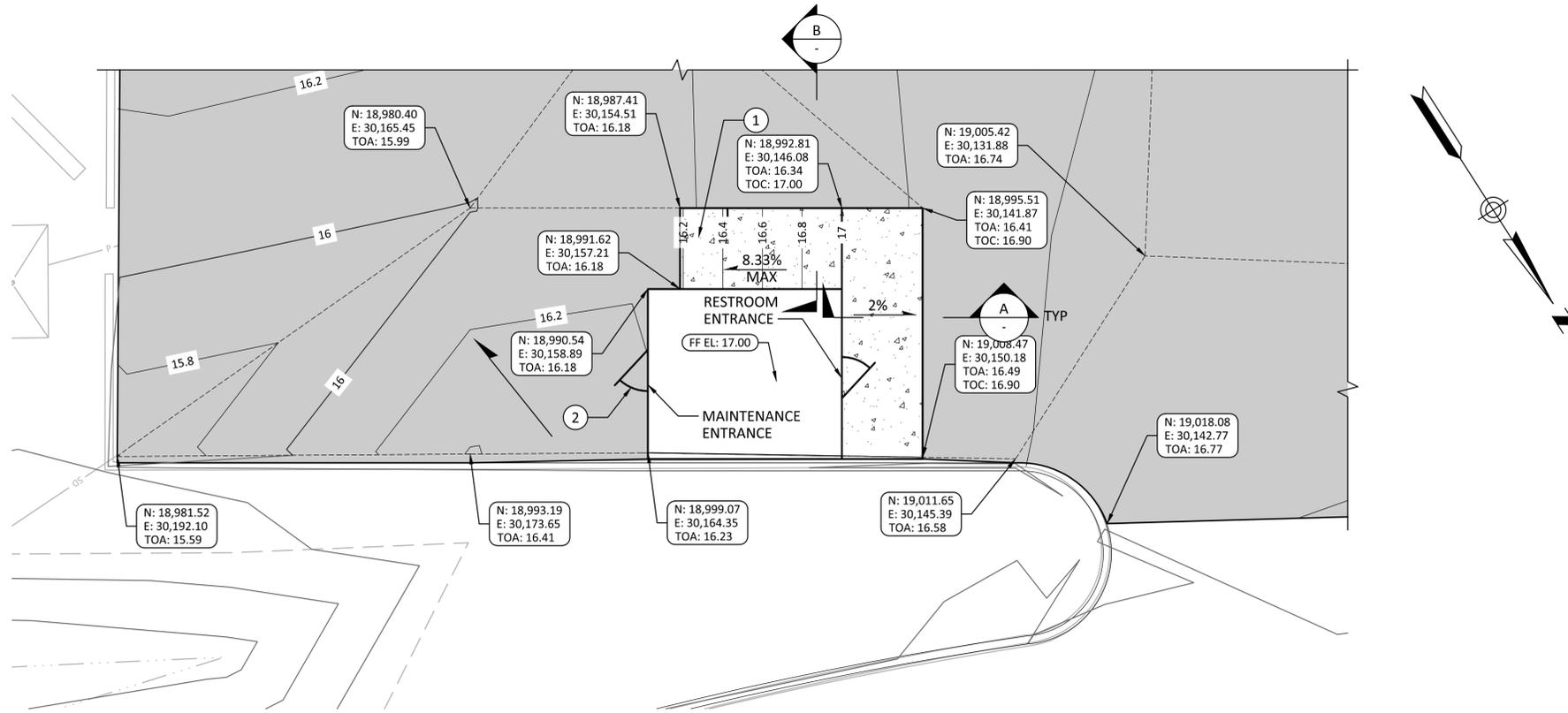


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**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II**

ENLARGED GRADING & DRAINAGE PLAN

DRAWING NO. **C-11**
 PROJECT NO. **FAWAT-12-145**
 DATE: **10/8/14**
 SHEET NO. **18 OF 48**



NOTES:

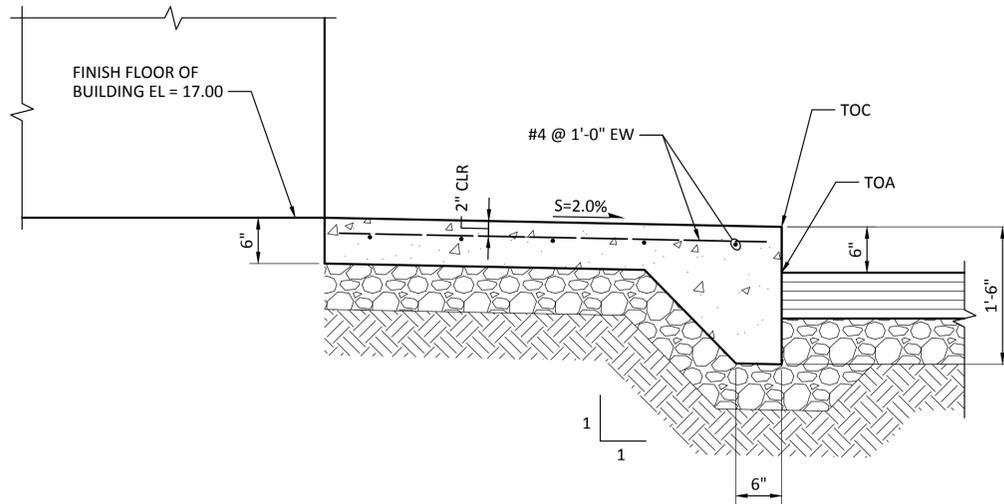
1. INFORMATION ON THIS DWG BASED ON BUILDING SHOWN ON DWG C-25. CONTACT ENGINEER IF BUILDING CHANGES.

KEY NOTES:

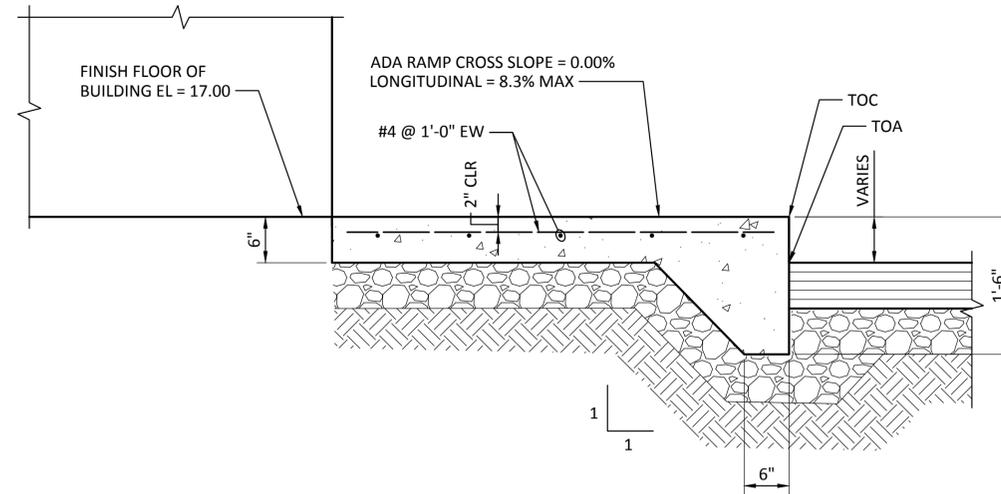
- 1 CONCRETE WALK AROUND BUILDING.
- 2 INCREASE TOA ELEVATION IN A 4'-0" x 4'-0" AREA ADJACENT TO MAINTENANCE ENTRANCE TO 16.50 AND GRADUALLY GRADE AWAY AT REQUIRED SLOPE TO MATCH IN WITH ESTABLISHED GRADING PLAN.

ENLARGED RESTROOM GRADING & DRAINAGE PLAN

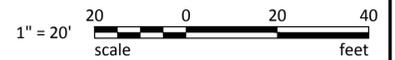
SCALE: 1"=5'-0"



A SECTION
SCALE: NTS



B SECTION
SCALE: NTS



BID DOCUMENTS

MARK	REVISION DESCRIPTION	BY	APP.	DATE

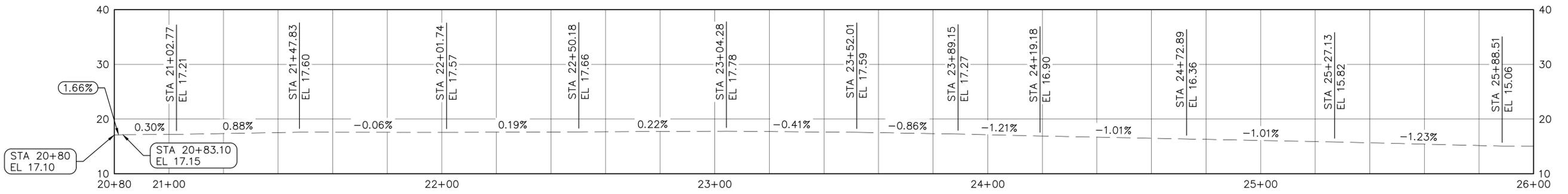
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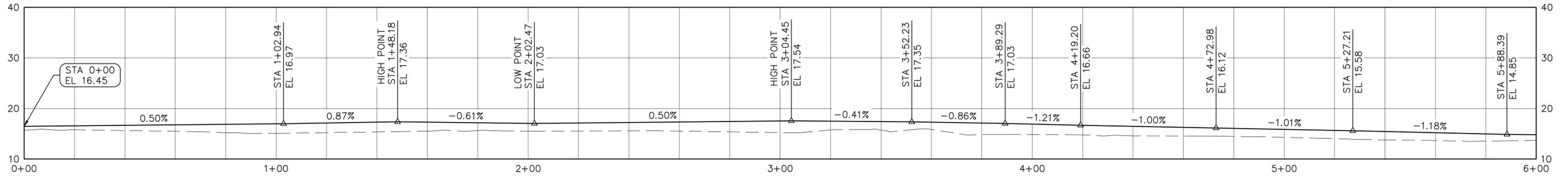
DRAWN BY MDB
 DESIGN BY VHN
 CHECK BY CSB
 PROJ MGR CSB

**PORT OF GRAYS HARBOR
 28TH STREET BOAT LAUNCH IMPROVEMENTS
 CONSTRUCTION PHASE II**
 ENLARGED BUILDING GRADING & DRAINAGE PLAN

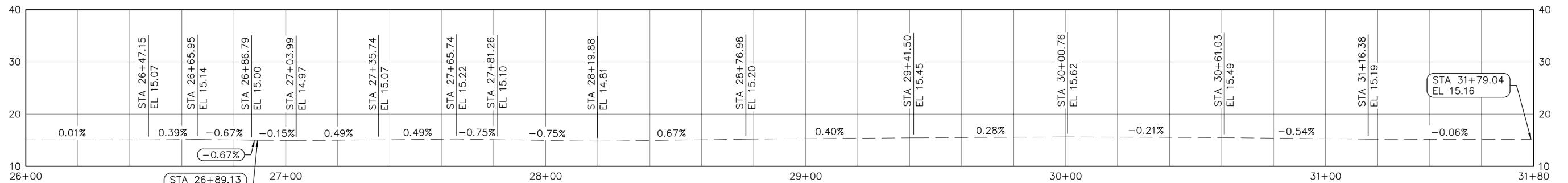
DRAWING NO. **C-12**
 PROJECT NO. FAWAT-12-145
 DATE: 10/8/14
 SHEET NO. 19 OF 48



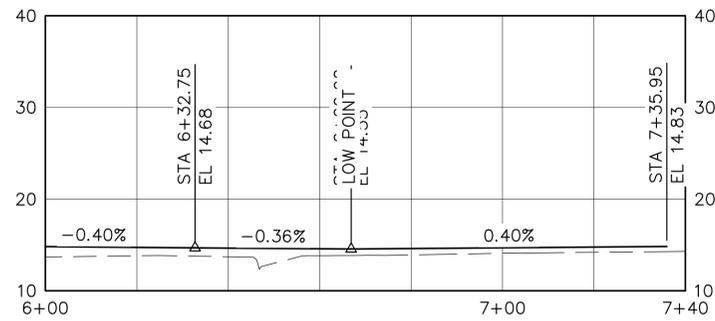
PROFILE - P LINE (EDGE OF EXISTING ACP)



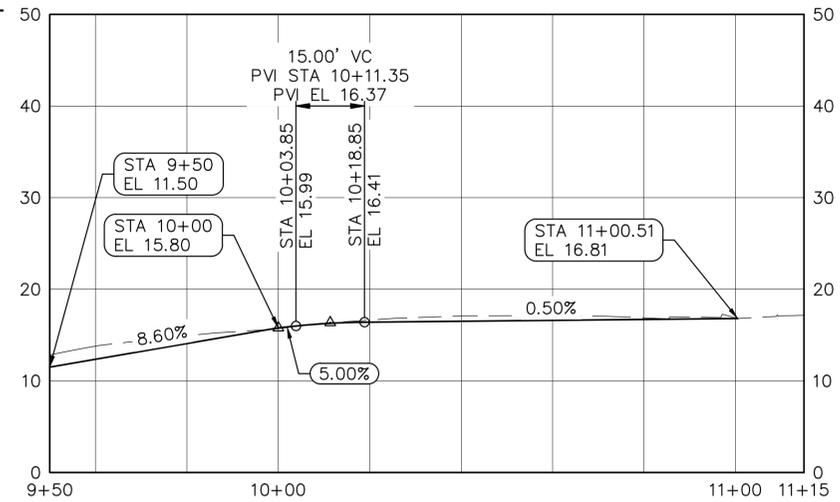
PROFILE - E LINE (EDGE OF HMA PAVING)



PROFILE - P LINE (CONT EDGE OF EXISTING ACP)



PROFILE - E LINE (CONT EDGE OF HMA PAVING)



PROFILE - R LINE

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PORT OF GRAYS HARBOR
28TH STREET BOAT LAUNCH IMPROVEMENTS
CONSTRUCTION PHASE II
GRADING & DRAINAGE PROFILES & SECTIONS

DRAWING NO. **C-13**
PROJECT NO. FAWAT-12-145
DATE: 10/8/14
SHEET NO. 20 OF 48